CDP-M77

SERVICE MANUAL

AEP Model
UK Model
E Model

Model Name Using Similar Mechanism	CDP-M95
CD Mechanism Name	CDM9-5
Base Unit Name	BU-5C

SPECIFICATION

Compact disc player

Frequency response	2 Hz – 20 kHz ± 0.5 dB
Signal to noise ratio	More than 100 dB
Dynamic range	More than 95 dB
Harmonic distortion	Less than 0.003 %
Channel separation	More than 98 dB

Outputs

LINE OUT (FIXED) (phono jacks)	Output level 2 V (at 50 kilohms) Load impedance over 10 kilohms
DIGITAL OUT (OPTICAL) (optical output connector)	Wave length 660 nm Output level −18 dBm
HEADPHONES (stereo phone jack)	Output level max. 15 mW
	Load impedance 32 ohms

General

Power requirements	AEP model 220 V AC (or 240 V AC adjustable by Sony personnel), 50/60 Hz UK model 240 V AC (or 220 V AC adjustable by Sony personnel), 50/60 Hz E model 110 – 120 or 220 – 240 V AC adjustable, 50/60 Hz
Power consumption	12 W
Dimensions (approx., including projections)	355 × 93 × 310 mm (w/h/d) (14 × 3 3/4 × 12 1/4 inches)
Weight (approx.)	3.5 kg (7 lbs 11 oz)

Supplied accessories

Audio cord	1 (2 phono plugs – 2 phono plugs)
Remote commander	1
Sony SUM-3 (NS) batteries	2

— Continued on next page —

MICROFILM

COMPACT DISC PLAYER

SONY®

Remote commander (RM-D270)

Remote control system	Infrared control
Power requirements	3 V DC with two R6 (size AA) batteries
Dimensions	Approx. 67 × 20 × 175 mm (w/h/d) ($2^{3}/_{4} \times {}^{13}/_{16} \times 7$ inches)
Weight	Approx. 135 g (4 oz) Including batteries

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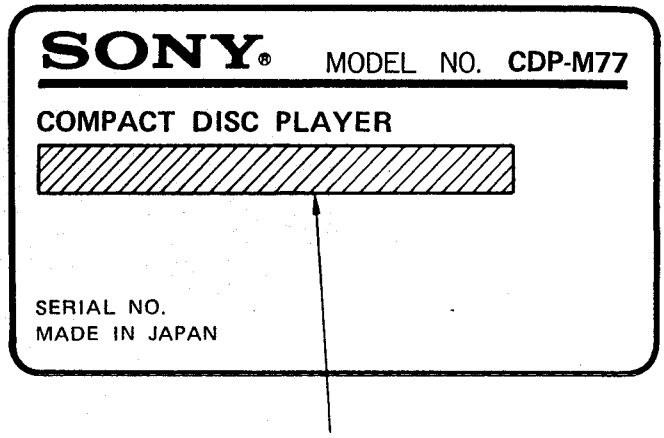
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

MODEL IDENTIFICATION

– Specification Labels –



AEP model: AC: 220 V ~ 50/60 Hz 12 W
UK model: AC: 240 V ~ 50/60 Hz 12 W
E model: AC: 110–120, 220–240 V ~ 50/60 Hz 12 W

SECTION 1
SERVICING NOTES

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

1. Laser Diode Properties
   - Material: GaAlAs
   - Wavelength: 780 nm
   - Emission Duration: continuous
   - Laser Output: max. 44.6 μW*

     * This output is the value measured at a distance of about 200 mm from the objective lens surface on the Optical Pick-up Block.

2. During service, do not take the Optical Pick-up Block apart, and do not adjust the APC circuit. If there is a breakdown in the APC circuit (including laser diode), replace the entire Optiocal Pick-up Block (including APC borad).

BESKYTTELSE AF ØJNE MOD LASERSTRÅLING UNDER SERVICE

I dette apparat anvendes laserlys. Derfor skal nedenstående instruktioner nøje følges under service.

Følg iøvrigt instruktionerne i servicemanualen.

ADVARSEL!!

Under service må øjnene ikke komme nær objektiv-linsen på den optiske pick-up enhed. I tilfælde af at det er nødvendigt at kontrollere udsendelsen af laserlys, skal det ske i en afstand af mere end 25 cm fra den optiske pick-up.

1. Laser-didoe data
   - Materiale: GaAlAs
   - Bølgelængde: 780 nm
   - Udstråling: Kontinuerlig
   - Laseroutput: Max. 0,4 mW*

     * Målt i 1,6 mm afstand fra overfladen af objektivlinsen pa den optiske pick-up enhed.

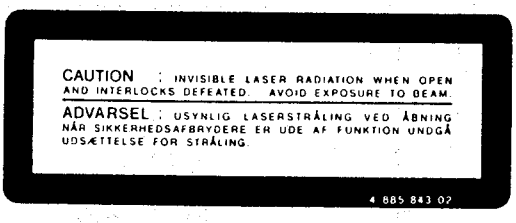
   - Klassifikation: Klasse IIIb.

2. Adskil aldrig den optiske pick-up enhed under service, og juster ikke APC kredsløbet (Automatic Power Control). Hvis APC kredsløbet (incl. laserdioden) bryder ned, skal hele den optiske pick-up enhed (incl. APC printkortet) udskiftes.

LASER ADVARSEL MÆRKNING

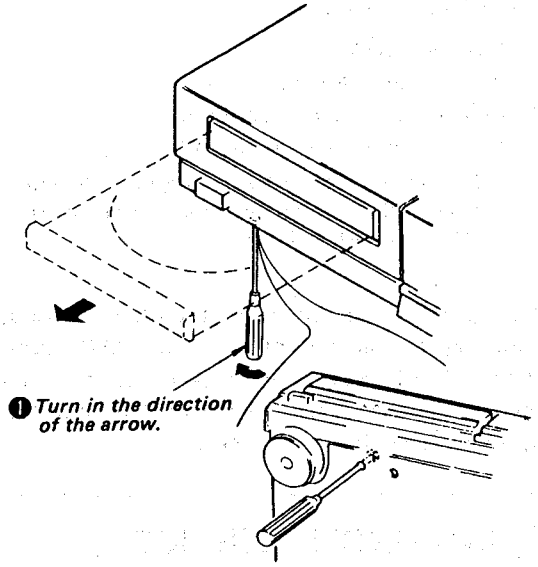
Følgende mærkning findes indvendig i apparatet:

1. Advarsel Mærkning


CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSÆTTELSE FOR STRÅLING.
4 885 843 02

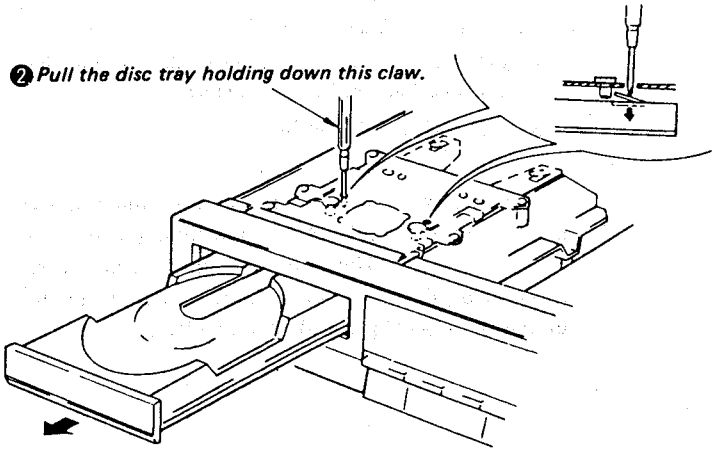
VAROITUS: Laite sisältää, laserdiodin, joka lähettää (näkymätöntä) silmille vaarallista lasersateilyä.

HOW TO OPEN THE DISC TRAY WHEN POWER SWITCH TURNS OFF



Caution: When you work, keep the set horizontal.

DISC TRAY REMOVAL



NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

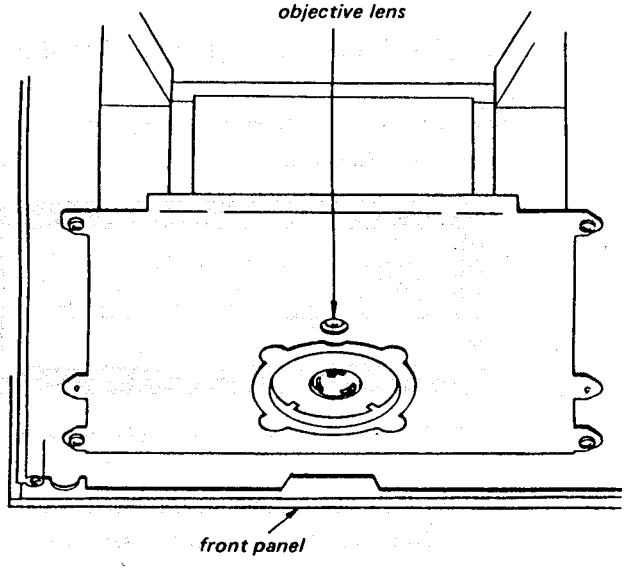
The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

LASER DIODE AND FOCUS SERCH OPERATION CHECK

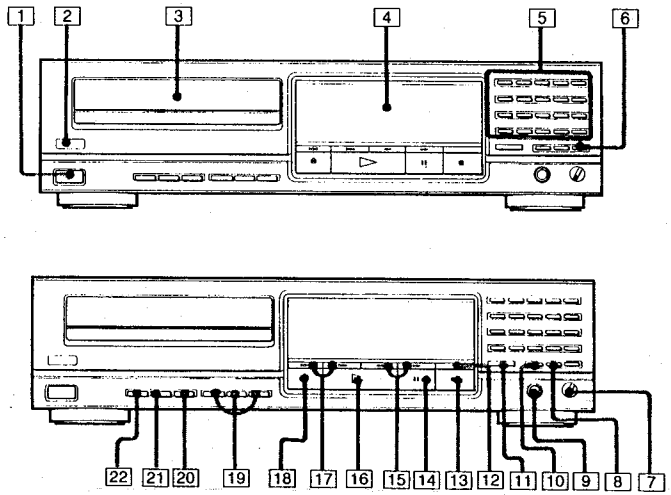
1. Make POWER switch on with no disc inserted and disc table closed.
2. Confirm that the following operation is performed while observing the objecting lens.



① Confirm that laser beam is spread.
② Up and down motion of the objective lens. (3 times)

Location of Controls

Front Panel

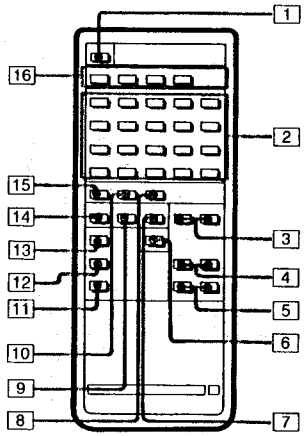


[1] POWER switch
[2] Remote sensor
[3] Disc tray
[4] Display window
[5] Numeric buttons
[6] CLEAR (program clear) button
[7] HEADPHONE LEVEL control
[8] CHECK (program check)
[9] HEADPHONE jack
[10] >20 (over 20) button
[11] FADER (FADE IN/FADE OUT) button
[12] EDIT/TIME FADE button
[13] ■ (stop) button
[14] ❚❚ (pause) button
[15] ◀◀ ▶▶ (manual search) buttons
[16] ▶ (play) button
[17] I◀◀ ▶▶I (AMS*) buttons
[18] ⏏ (OPEN/CLOSE) button
[19] PLAY MODE buttons
PROGRAM button
SHUFFLE button
CONTINUE/SINGLE button
[20] REPEAT button
[21] AUTO SPACE (auto space) button
[22] TIME button

* AMS is an abbreviation of Automatic Music Sensor.

Remote Commander

RM-D270



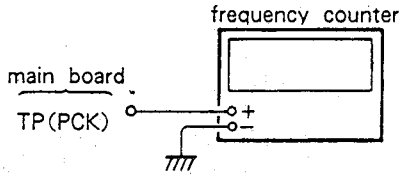
[1] ⏏ (open/close) button
[2] Numeric buttons
[3] I◀◀ ▶▶I AMS buttons
[4] ◀◀ ▶▶ (manual search) buttons
[5] ◀◀ ▶▶ SLOW (low speed manual search) buttons
[6] FADER (FADE IN/FADE OUT) button
[7] TIME button
[8] CLEAR (program clear) button
[9] A ⟷ B repeat button
[10] CHECK button
[11] ■ (stop) button
[12] ❚❚ (pause) button
[13] ▶ (play) button
[14] CLEAR/REPEAT (A ⟷ B repeat clear/repeat) button
[15] >20 (over 20) button
[16] PLAY MODE buttons
PGM (program) button
SHUFFLE button
CONTINUE button
SINGLE button

SECTION 3
ELECTRICAL ADJUSTMENTS

1. Perform adjustments in the order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use the oscilloscope with more than 10MΩ impedance.

RF PLL Frequency Adjustment

Procedure :

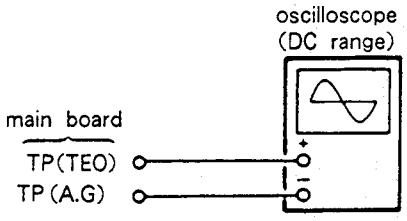


1. Connect test point TP (ASY) to ground with jumper wire.
2. Turn POWER switch on.
3. Connect the frequency counter to test point TP (PCK).
4. Adjust RV201 so that the reading on frequency counter is 4.3218MHz±30kHz.
5. Remove lead wire connecting TP (ASY) and ground.
6. Put disc (YEDS-18) in and press ▷ button.
7. Confirm that the reading on frequency counter is 4.3218MHz.

E-F Balance Adjustment

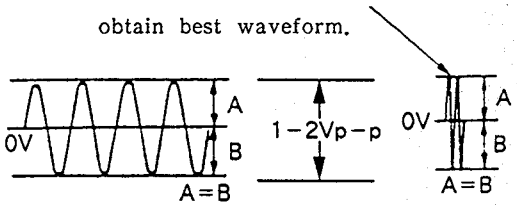
This adjustment should be made when replacing Optical Pick-up Block.

Procedure :

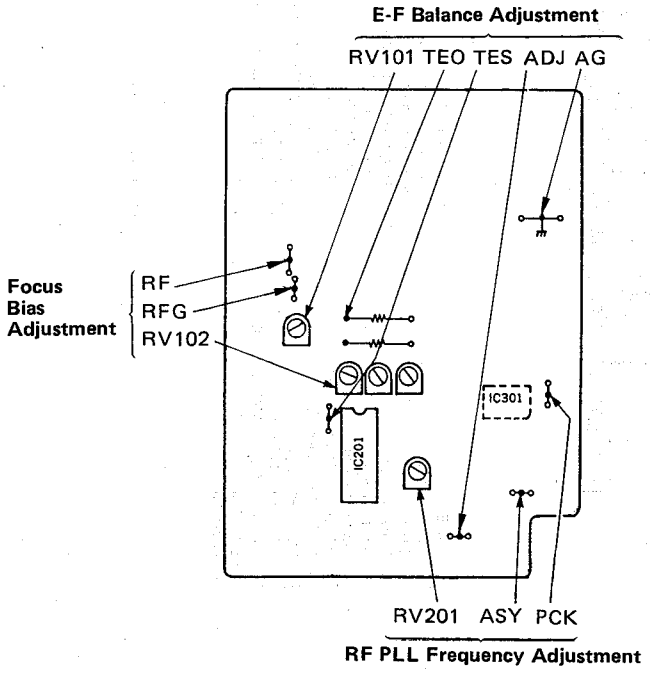


1. Connect test points TP (ADJ) and TP (TEI) to ground with jumper wires.
2. Connect oscilloscope to test points TP (TEO) and TP (A. G).
3. Turn POWER switch on.
4. Put disc (YEDS-18) in and playback the 6th selection.
5. Adjust RV101 so that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0V.

Note : Take sweep time as long as possible to obtain best waveform.



Adjustment Location : main board

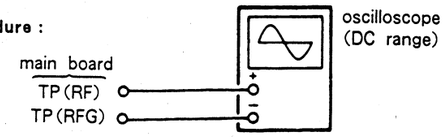


REFERENCE

Focus Bias Adjustment

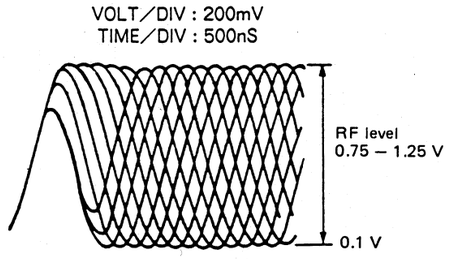
This adjustment should be made when replacing Optical Pick-up Block.

Procedure :



1. Connect oscilloscope to test points TP(RF) and TP (RF G).
2. Turn POWER switch on.
3. Put disc (YEDS−18) in and playback the 6th selection.
4. Adjust RV102 for an optimum waveform eye pattern or so that the peak is maximum. Optimum eye pattern means that shape "◇" can be clearly distinguished at the center of the waveform.

● RF Signal Reference Waveform (eye pattern)



When observing the eye pattern, set the oscilloscope for AC range and raise vertical sensitivity.

Focus/Tracking Gain Adjustment

A frequency response analyzer is necessary in order to perform this adjustment exactly.

However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.

Focus/tracking gain determines the pick - up follow - up (vertical and horizontal) relative to mechanical noise and mechanical shock when the 2-axis device operate.

However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise when the 2-axis device operates increases.
- When gain is lowered, it is more susceptible to mechanical shock and skipping occurs more easily.
- When gain adjustment is off, the symptoms below appear.

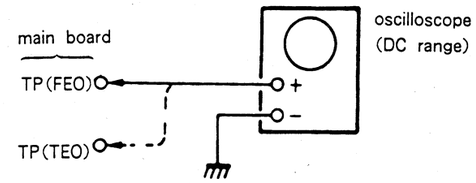
Symptoms \ Gain	Focus	Tracking
● The time until music starts becomes longer for STOP →▷PLAY or automatic selection (⏮ ⏭ buttons pressed. (Normally takes about 2 seconds.)	low	low or high
● Music does not start and disc continues to rotate for STOP→▷PLAY or auto - matic selection (⏮ ⏭ buttons pressed.)	–	low
● Disc table opens shortly after STOP→ ▷PLAY.	low or high	–
● Sound is interrupted during PLAY. Or time counter display stops progressing.	–	low
● More poise during 2-axis device oper - ation.	high	high

The following is a simple adjustment method.

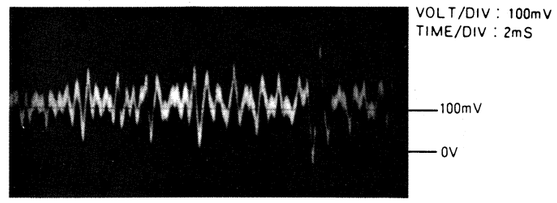
−Simple Adjustment−

Note : Since exact adjustment cannot be performed, remember the positions of the controls before performing the adjustment. If the positions after the simple adjustment are only a little different, return the controls to the original position.

Procedure :

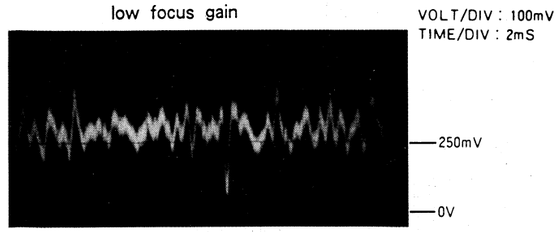


1. Keep the set horizontal.
   (If the set is not horizontal, this adjustment cannot be performed due to the gravity against the 2 axis device.)
2. Insert disc (YEDS−18) playback the 6th selection.
3. Connect oscilloscope to main board TP(FEO).
4. Adjust RV103 so that the waveform is as shown in the figure below. (focus gain adjustment)

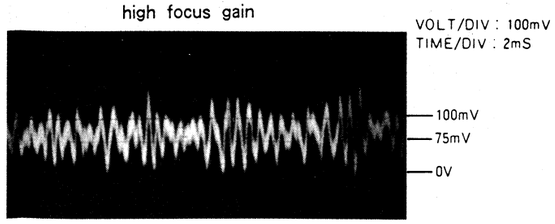


● Incorrent Examples (DC level changes more than on adjusted waveform)

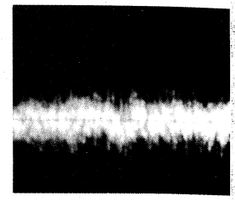
low focus gain



high focus gain

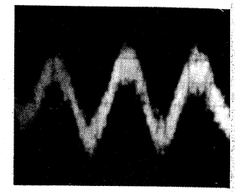


5. Connect oscilloscope
6. Adjust RV104 so tha
   the figure below. (tr

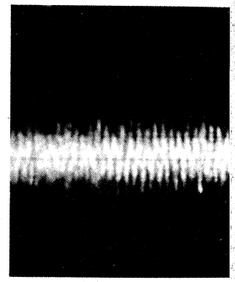


● Incorrect Examples (

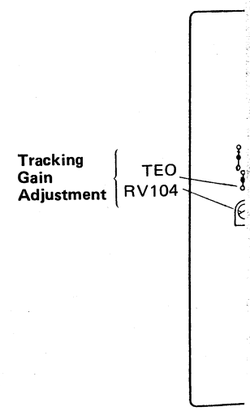
low tracking



high tracking gain
(higher fundamental wave



Adjustment Location : ma



le adjustment method.

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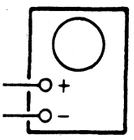
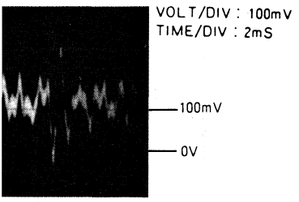
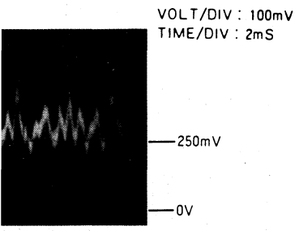
ment. If the positions after the
only a little different, return
original position.

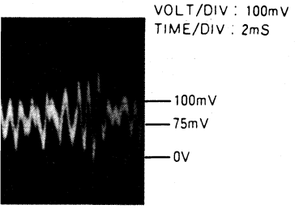


tal, this adjustment cannot be
ivity against the 2 axis device.
playback the 6th selection.
main board TP(FEO).
he waveform is as shown in
s gain adjustment)

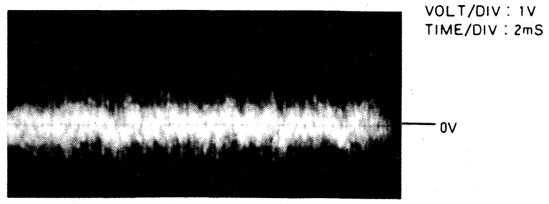


level changes more than on



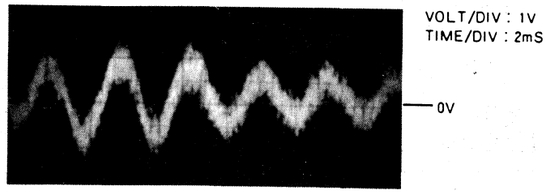


5. Connect oscilloscope to main board TP(TEO).
6. Adjust RV104 so that the waveform is as shown in the figure below. (tracking gain adjustment)

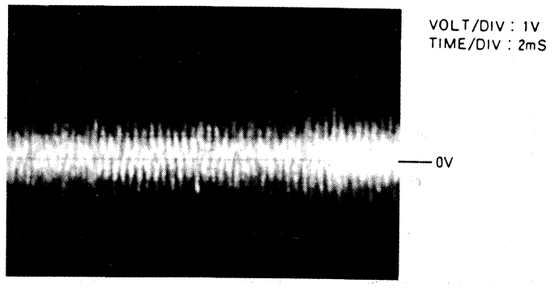


● Incorrect Examples (fundamental wave appears)

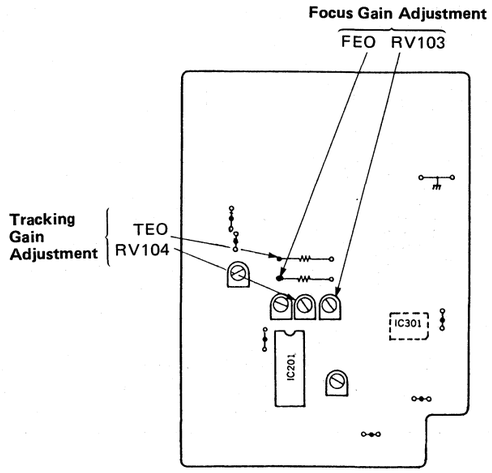
low tracking gain



high tracking gain
(higher fundamental wave than for low gain)

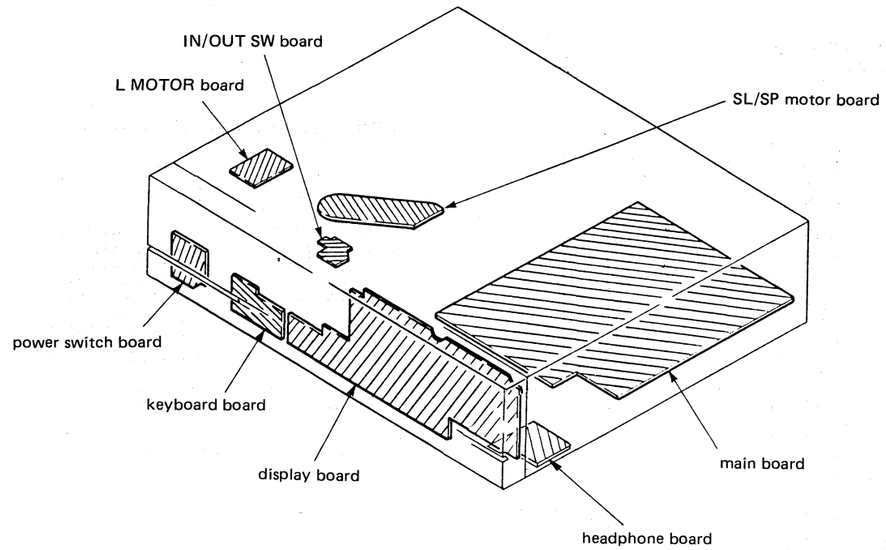


Adjustment Location : main board



SECTION 4
DIAGRAMS

4-1. CIRCUIT BOARDS LOCATION



4-2. PRINTED WIRING BOARDS

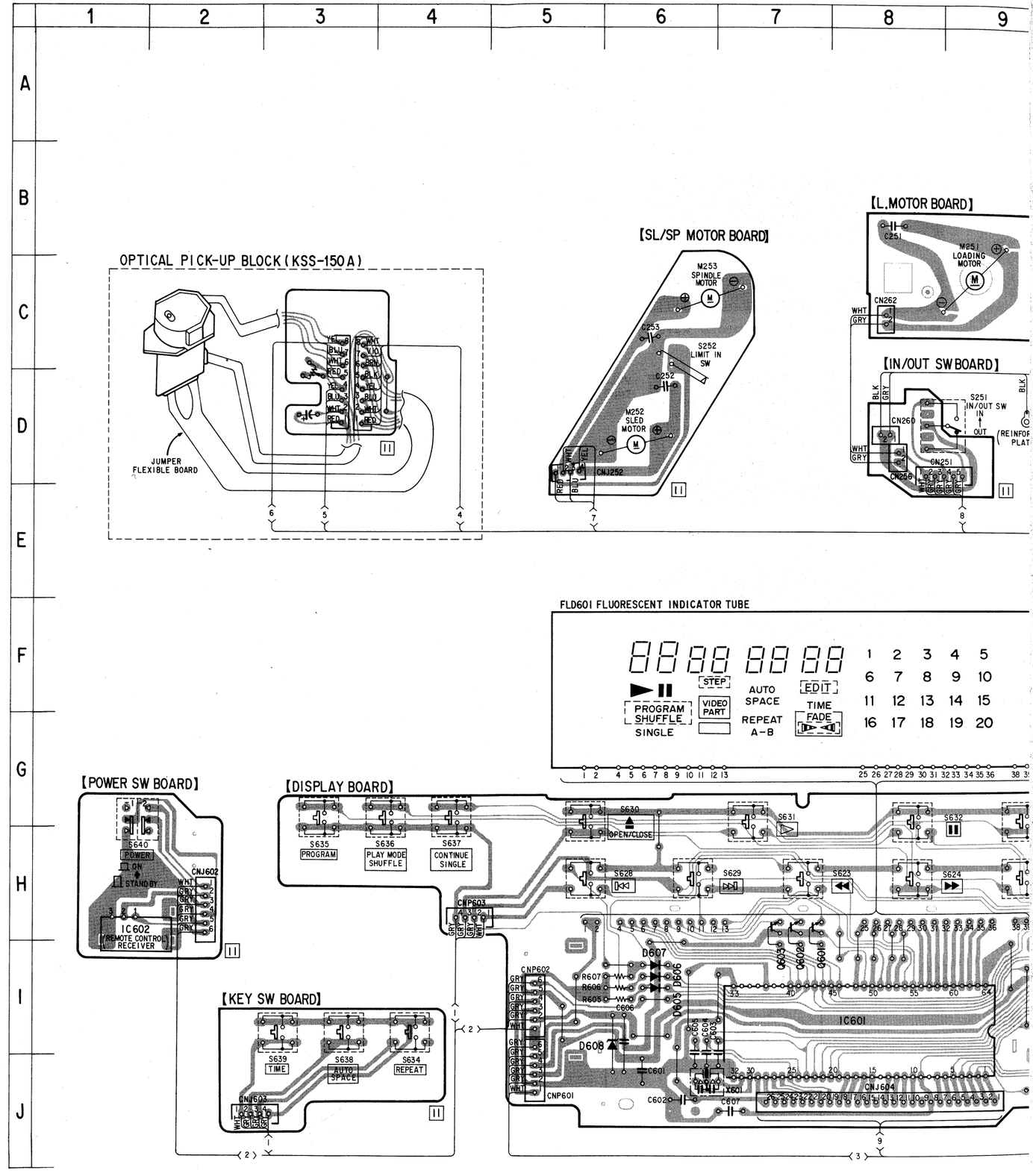
● See page 22 for Semiconductor Lead Layouts.

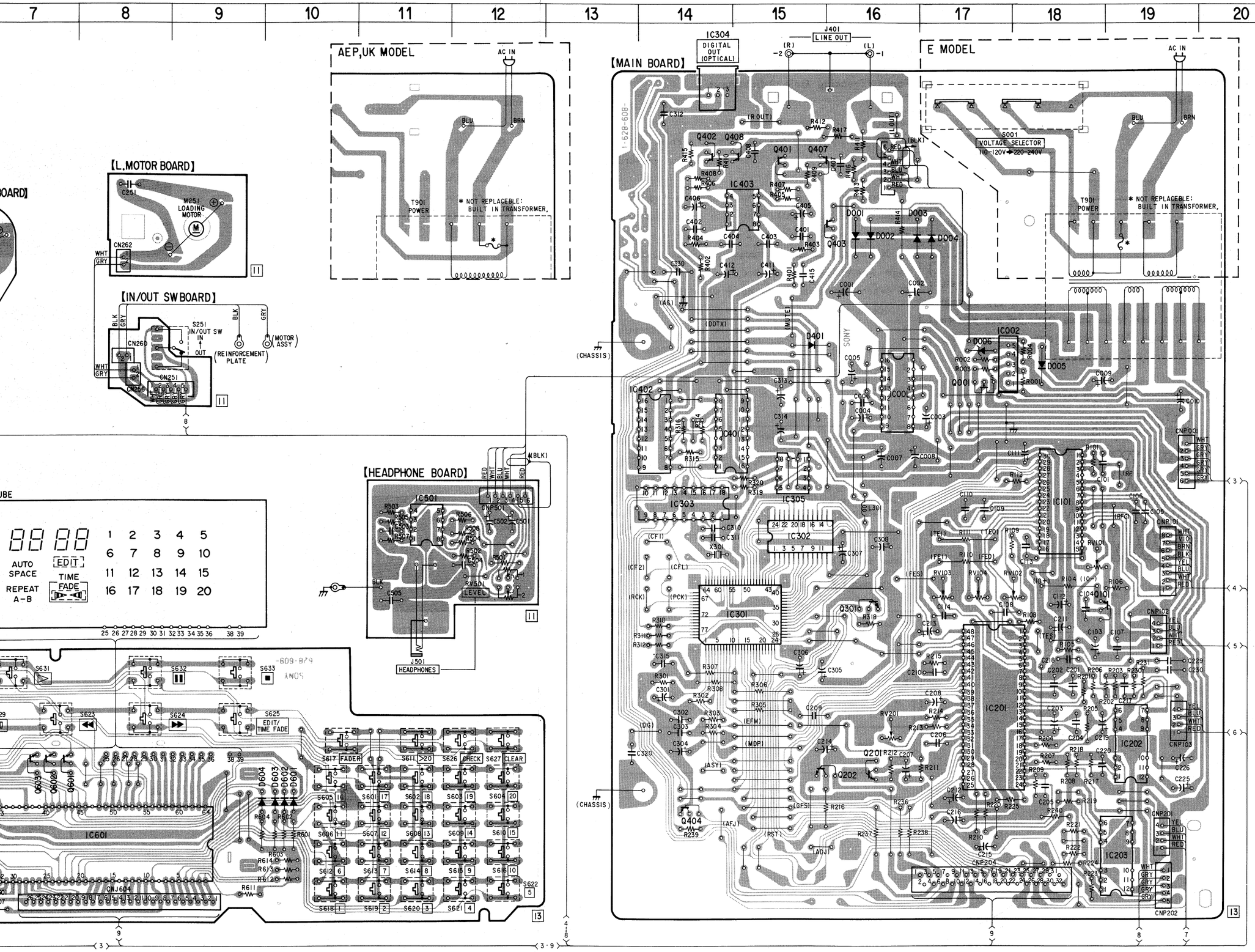
Note:

- ○—— : parts extracted from the component side.
- ●—— : parts extracted from the conductor side.
- ■ : parts mounted on the conductor side.

● Semiconductor Location

Ref. No.	Location
D001	C-16
D002	C-16
D003	C-17
D004	C-17
D005	D-18
D006	D-17
D401	D-15
D601	I-10
D602	I-10
D603	I-10
D604	I-9
D605	I-6
D606	I-6
D607	I-6
D608	I-6
IC001	D-16
IC002	D-17
IC101	F-18
IC201	H-17
IC202	H-19
IC203	I-19
IC301	G-15
IC302	F-15
IC303	F-14
IC304	A-14
IC305	F-15
IC401	E-14
IC402	E-14
IC403	B-15
IC501	F-11
IC601	I-8
IC602	H-1
Q001	D-17
Q101	G-19
Q201	I-16
Q202	I-16
Q301	G-16
Q401	C-15
Q402	B-14
Q403	C-16
Q404	I-14
Q407	B-15
Q408	B-15
Q601	H-7
Q602	H-7
Q603	H-7




7
8
9
10
11
12
13
14
15
16
17
18
19
20
AEP,UK MODEL
AC IN
BLU
BRN
T901
POWER
* NOT REPLACEBLE:
BUILT IN TRANSFORMER,
【L.MOTOR BOARD】
C251
M251
LOADING
MOTOR
CN262
WHT
GRY
【IN/OUT SW BOARD】
S251
IN/OUT SW
IN
OUT
BLK
GRY
(MOTOR
ASSY)
(REINFORCEMENT
PLATE)
CN260
CN251
CN256
【MAIN BOARD】
1-628-608-
IC304
DIGITAL
OUT
(OPTICAL)
J401
LINE OUT
(R)
(L)
E MODEL
S001
VOLTAGE SELECTOR
110-120V 220-240V
IC403
IC402
IC401
IC001
IC002
IC303
IC305
IC302
IC301
IC201
IC202
IC203
IC101
IC601
IC501
Q402
Q408
Q401
Q407
Q403
Q001
Q201
Q202
Q301
Q404
D001
D002
D003
D004
D005
D006
D401
(CHASSIS)
SONY
【HEADPHONE BOARD】
IC501
CNP501
RV501
LEVEL
J501
HEADPHONES
【DISPLAY BOARD】
AUTO
SPACE
EDIT
TIME
FADE
REPEAT
A-B
S631
S632
S633
S623
S624
S625
EDIT/
TIME FADE
S617 FADER
S611 >20
S626 CHECK
S627 CLEAR
S605 S601 S602 S603 S604
S606 S607 S608 S609 S610
S612 S613 S614 S615 S616
S618 S619 S620 S621 S622
IC601
CNJ604
D601 D602 D603 D604
-609-879
SONY
CNP001
CNP101
CNP102
CNP103
CNP201
CNP202
CNP204

【DISPLAY BOARD】

FLD601 FLUORESCENT INDICATOR TUBE

PROGRAM
SHUFFLE
SINGLE
VIDEO PART
CDV
STEP
AUTO SPACE
REPEAT A-B
EDIT
TIME FADE

Q601, 602, 603
DIGITAL DRIVE

Q603 2SC3402
Q602 2SC3402
Q601 2SC3402

D608 HZS9B1LT2
C606 0.1μ
C601 0.1
+30V
+5V

IC602
GP1U52
(REMOTE CONTROL RECEIVER)
S640 POWER STANDBY ⇄ ON
CNP602
CNJ602
F
F
GND
SW
+5V
REM

C607 470p

IC601
MASTER CONTROL

【POWER SW BOARD】

C602 0.1μ
X601 4MHz
C604 470p
C605 470p
C603 470p

33	RESET	
34	TEST	
35	VL DOWN	
36	VL UP	
37	TIMER	
38		
39	8G	
40	7G	
41	6G	
42	5G	
43	4G	
44	3G	
45	2G	
46	1G	
47		
48	o	
49	n	
50	m	
51	+30V	
52	l	
53	k	
54	j	
55	i	
56	h	
57	g	
58	f	
59	e	
60	d	
61	c	
62	b	
63	a	
64	VDD	
32	GND	
31	OSCO	
30	OSCI	
29	LOAD IN	
28	LOAD OUT	
27	OUT SW	
26	LD ON	
25	IN SW	
24	KEY 5	
23	KEY 4	
22	KEY 3	
21	KEY 2	
20	KEY 1	
19	KEY 0	
18	FOK	
17	GFS	
16	SQ CLK	
15	SUB Q	
14	EMPS	
13	A. MUTE	
12	ADJ	
11	AF. ADJ	
10	SCOR	
9	SYNC IN/SIRCS	
8		
7	SENSE	
6	SYNC OUT	
5	PRG L	
4	XLT	
3	PRG D/DATA	
2	PRG CK/CLK	
1	PLLSW	

IC601 MSC6458

OV DISC TABLE CLOSE :4.8V
OV DISC TABLE OPEN :4.8V

CNJ604

RESET	25
VL DOWN	24
VL UP	23
LOAD IN	22
LOAD OUT	21
OUT SW	20
LD ON	19
IN SW	18
FOK	17
GFS	16
SQ CLK	15
SUB Q	14
A. MUTE	13
ADJ	12
AF ADJ	11
SCOR	10
SYNC IN	9
SENS	8
SYNC OUT	7
PRG. L	6
XLT	5
PRG. D/DATA	4
PRG. CK/CLK	3
PLL SW	2
	1

D601-607
1SS132T-73

R611 4.7k
R612 4.7k
R613 4.7k
R614 4.7k

CNP603
CNJ603

KEY 5 KEY 4 KEY 3 KEY 2 KEY 1 KEY 0

PLAY MODE
PROGRAM
SHUFFLE
CONTINUE SINGLE
OPEN/CLOSE
EDIT/TIME FADE
CHECK
CLEAR
FADER

R607 33k
R606 33k
R605 33k
R604 33k
R603 33k
R602 33k
R601 33k

S628 S629 S630 S631 S632 S633
S623 S624 S625 S626 S627
S617 S618 S619 S620 S621 S622
S611 S612 S613 S614 S615 S616
S605 S606 S607 S608 S609 S610
S601 S602 S603 S604
S634 REPEAT
S638 AUTO SPACE
S639 TIME

【KEY SW BOARD】

【L. MOTOR BOARD】

M251 LOADING MOTOR
C251 0.022
CN262
CN256
S251 IN/OUT SW
CN260
(REINFORCEMENT PLATE)
(MOTOR ASSY)
CN251
CNP202 BLACK

【IN/OUT SW BOARD】

IC203
LOADING SERVO
IC203 (1/2) CXA1291
R221 130k
R222 150k
R224 150k
R223 130k

【SL/SP MOTOR BOARD】

M252 SLED MOTOR
M253 SPINDLE MOTOR
S252 LIMIT IN SW
C252 0.0022
C253 0.0022
CNJ252
CNP201 WHITE

IC202
FOCUS/TRACKING COIL/SLED M/DRIVE
IC202 CXA1291
R218 6.8k
R208 4.7k
R205 270k
R219 10μ 50V
R207 3.3k
R204 82k
R206 33k
R201 130k
C211 22μ 25V
R225 10k
R240 4.7k
C205 10000p
R209 510k
C204 0.1μ
C203 3.3μ 50V
C206 4700p
R211 560
C207 4.7μ 50V
C208 47μ 16V
R210 1k
R212 22k
C214 1μ 50V
C212 22μ 25V
C215 1μ 50V
Q201 2SC3402
Q202 2SC339
C230 0.1μ
R231 10
R217 120k
C220 0.1μ
R318 10k
Q301 2SC339
SCOR INVERT
C301 22μ
SENS
XLT
DATA
CLK
R239 1k
R238 1k
R237 1k
R236 1k
CNP204
PRG L
PRG CK
PRG D
R307 100k (1%)
R306 10k
C304 0.47μ 50V
C303 10000p
R304 100k
R303
MDP
EFM
ASY
R302 22k
C302 0.033μ
C305 1μ 50V

11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22

L/SP MOTOR BOARD】 OPTICAL PICK-UP BLOCK (KSS-150A)

M252 SLED MOTOR
M253 SPINDLE MOTOR
S252 LIMIT IN SW
C252 0.0022
C253 0.0022
CNJ252
CNP201 WHITE
TRACKING COIL
FOCUS COIL
CNP103 BLUE
LASER DIODE
CNP102 RED PH
DETECTOR
CNP101 WHITE PH
CNP001 DR
T901 POWER

IC202 FOCUS/ TRACKING COIL/ SLED M/ DRIVE
IC203 SPINDLE SERVO
IC002 REGULATOR
Q001 SWITCHING
IC002 M5231L
R001 68k
R004 10k
D006 RD5.1ES
C010 100µ 50V
R003 1k
R002 3.3k
C009 100µ 63V
D005 10E2N
Q001 2SK381-TP
D003 10E2N
D004 10E2N
D002 10E2N
D001 10E2N
C002 3300µ 16V
C001 6800µ 16V
AG
+5V
-8V
+8V
-5V
C226 100µ 16V
C225 100µ 16V
C105 10p
C106 10p
RFO
RF
Q101 AUTOMATIC POWER CONTROL
IC101 RF AMP
RV101 22k E-F BALANCE
IC101 CXA1081S
C104 1000p
C103 47µ 16V
R104 22
R105 91
Q101 2SB1013
C101 0.2200p
C113 0.033µ
FOCUS BIAS
TRACKING GAIN
FOCUS GAIN
IC001 REGULATOR
C003 4.7µ 50V
IC001 M5294P
C006 0.1
C004 4.7µ 50V
C008 470µ 10V
C007 470µ 10V
C005 10µ 50V
D001-005 RECT
* NOT REPLACEBLE: BUILT IN TRANSFOR
C107 0.47µ
C108 2200p
C109 0.01µ
C110 0.01µ
C111 100µ 16V
C314 100µ 16V
C112 22µ 25V
R108 18k
RV102 4.7k
R109 18k
RV103 22k
C114 4700p
R110 4.7k
RV104 22k
R111 4.7k
TEI
TES
FES
TEO
FEI
FEO
IC201 FOCUS/TRACKING/SLED/SPINDLE SERVO
IC201 CXA1082BS
C204 0.1µ
C205 10000p
R209 510k
C203 3.3µ 50V
C202 0.033µ
C201 0.1µ
C211 22µ 25V
C212 22µ 25V
C213 22µ 25V
C214 1µ 50V
C215 1µ 50V
C216 1µ 50V
C206 4700p
C207 4.7µ 50V
C208 47µ 16V
C209 1000p
C210 100p
R210 1k
R211 560
R212 22k
R213 100k
R214 3.6k (1%)
R215 100k
R216 10k
RV201 1k RF PILL
Q201, 202 PLL SWITCHING
Q201 2SC3402
Q202 2SC3399
IC301 DIGITAL SIGNAL PROCESSOR CLV SERVO
IC302 16BIT RAM
IC301 CXD1125
IC302 LC9600PM-144
C307 100 16V
C313 100µ 16V
C315 0.47µ
C308 22µ 25V
C305 1µ 50V
C306 1µ 50V
C304 0.47µ 50V
C303 10000p
C301 0.47µ 50V
C302 0.033µ
C320 0.1µ
R318 10k
Q301 2SC3399 SCOR INVERTER
R307 100k (1%)
R308 100k (1%)
R306 10k
R305 100k
R304 100k
R303 10k
R302 22k
R301 1M
R312 1k
R311 1k
R310 1k
SENS
XLT
DATA
CLK
EFM
ASY
MDP
SCOR
SBSO
SQSO
SQEX
DOTX
SCSY
SFSY
C4M
WDCK
LRCK
DATA
C2IO
C1IO
C4LR
RAOV
VDD
GTOP
V8FS
PCLK
WFCK
RFCK
C2PO
C2FL
C2F2
PCK
RCK
CFL
CF1
CF2
IC303 DIGITAL FILTER
IC303 CXD2550P
X301 16.9MHz
C311 15p
C310 16p
R316 330
R315 330
R314 330
R320 330
R319 330
IC305 INVERTER
IC305 M74HC6004P
IC401, IC402 D/A CONVERTER
IC401 PCM56P-S
IC402 PCM56P-S
C401 0.0068
C402 0.0068
C403 0.0022
C404 0.0022
C411 470/16V
C412 470/16V
R401 820
R402 820
R403 820
R404 820
IC403 RC4558P LINE AMP
MUTE
D401 1SS132
Q404 2SC3399 MUTING SWITCH
DQ
RST
L30
DOTX
C312 0.1µ
C33 0.1

AEP, UK MODEL

E MODEL

CNP101 WHITE PH

CNP001 DR

SW GND +5V +30V F F

T901 POWER

AC IN

S001 VOLTAGE SELECTOR 220–240V 110–120V

IC002 REGULATOR

Q001 SWITCHING

IC002 M5231L

Q001 2SK381-TP

IC001 REGULATOR

IC001 M5294P

D001-005 RECT

* NOT REPLACEBLE : BUILT IN TRANSFORMER

IC304 GP1F31T

DIGITAL OUT (OPTICAL)

IC304 DIGITAL OUTPUT

【HEADPHONE BOARD】

CNP401

CNP501

IC501 (1/2) NJM4556D HEADPHONE AMP

RV501 20k/20k LEVEL

IC305 INVERTER

IC305 M74HC6004P

IC401 , IC402 D/A CONVERTER

IC401 PCM56P-S

IC402 PCM56P-S

IC303 DIGITAL FILTER

IC303 CXD2550P

IC403 (1/2)

IC403 RC4558P LINE AMP

Q401,402,407,408 MUTING

Q403 2SA1345 MUTING SWITCH

Q404 2SC3399 MUTING SWITCH

D401 1SS132

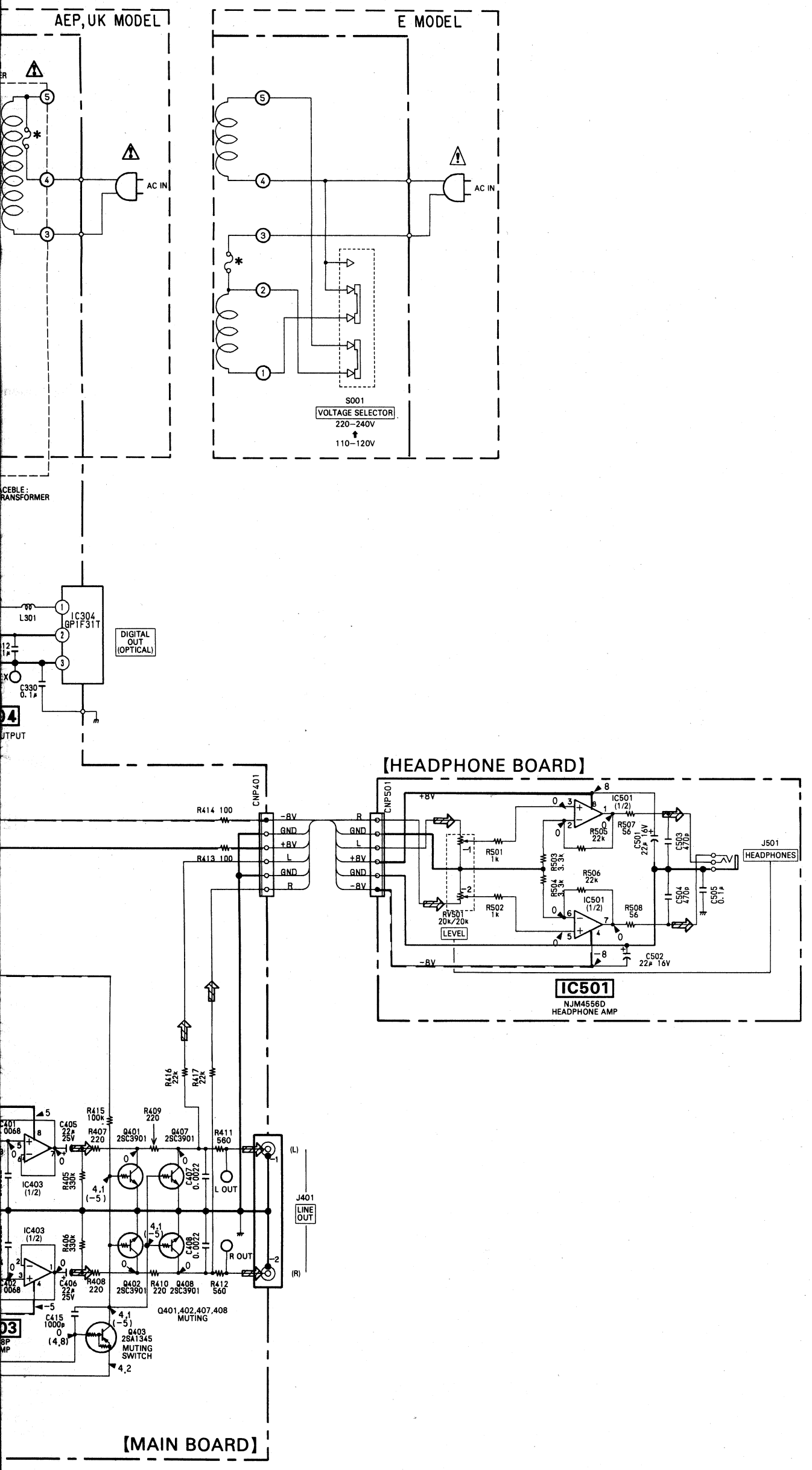
MUTE

J401 LINE OUT

L OUT

R OUT

【MAIN BOARD】



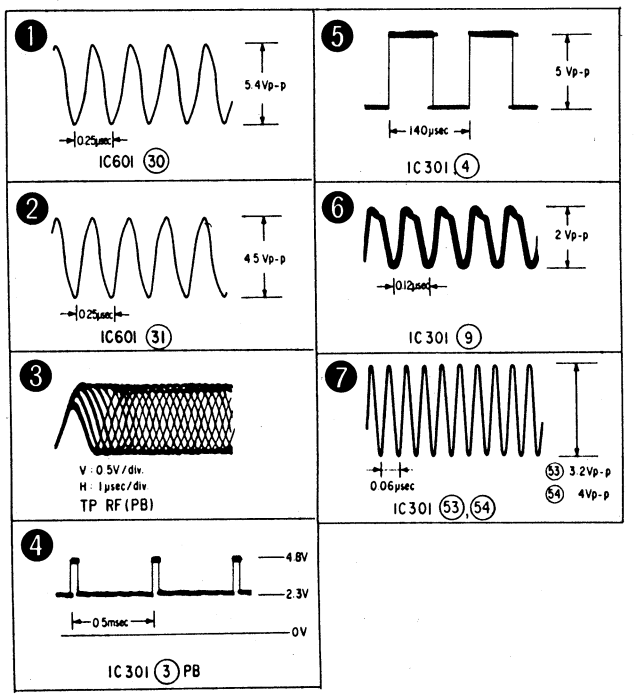
Note:

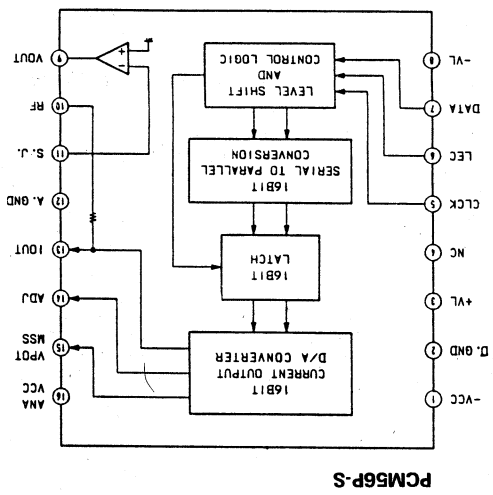
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % : indicates tolerance.
- △ : internal component.
- ▬▬ : B+ Line
- ▬ ▬ : B– Line
- ▭ : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : STOP
  ( ) : PLAY
- Voltages are taken with a VOM (50 kΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : CD
- Switch

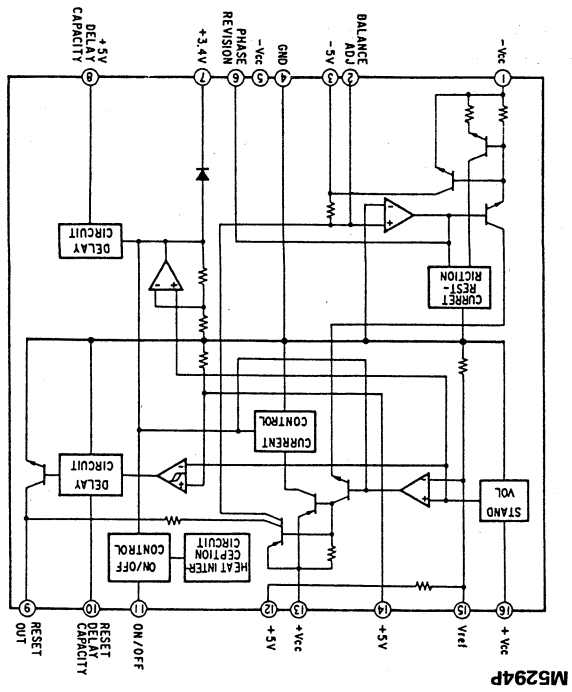
Ref. No	Switch	Position
S001	VOLTAGE SELECTOR(E)	110–120V
S251	IN/OUT	OUT
S252	LIMIT IN	OFF
S601	17	OFF
S602	18	OFF
S603	19	OFF
S604	20	OFF
S605	16	OFF
S606	11	OFF
S607	12	OFF
S608	13	OFF
S609	14	OFF
S610	15	OFF
S611	>20	OFF
S612	6	OFF
S613	7	OFF
S614	8	OFF
S615	9	OFF
S616	10	OFF
S617	FADER	OFF
S618	1	OFF
S619	2	OFF
S620	3	OFF
S621	4	OFF
S622	5	OFF
S623	◀◀	OFF
S624	▶▶	OFF
S625	EDIT/TIME FADE	OFF
S626	CHECK	OFF
S627	CLEAR	OFF
S628	⏮	OFF
S629	⏭	OFF
S630	⏏OPEN/CLOSE	OFF
S631	▷	OFF
S632	⏸	OFF
S633	■	OFF
S634	REPEAT	OFF
S635	PROGRAM	OFF
S636	SHUFFLE	OFF
S637	CONTINUE SINGLE	OFF
S638	AUTO SPACE	OFF
S639	TIME	OFF
S640	POWER	OFF

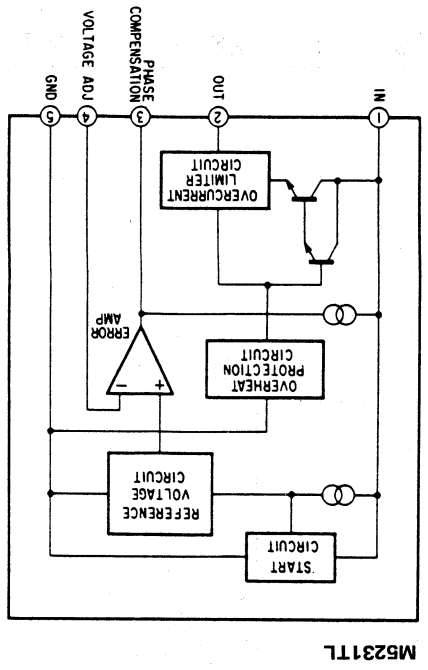
Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

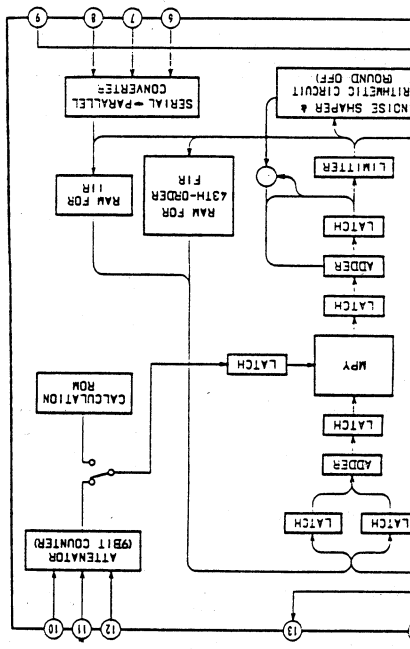
● Wavefroms









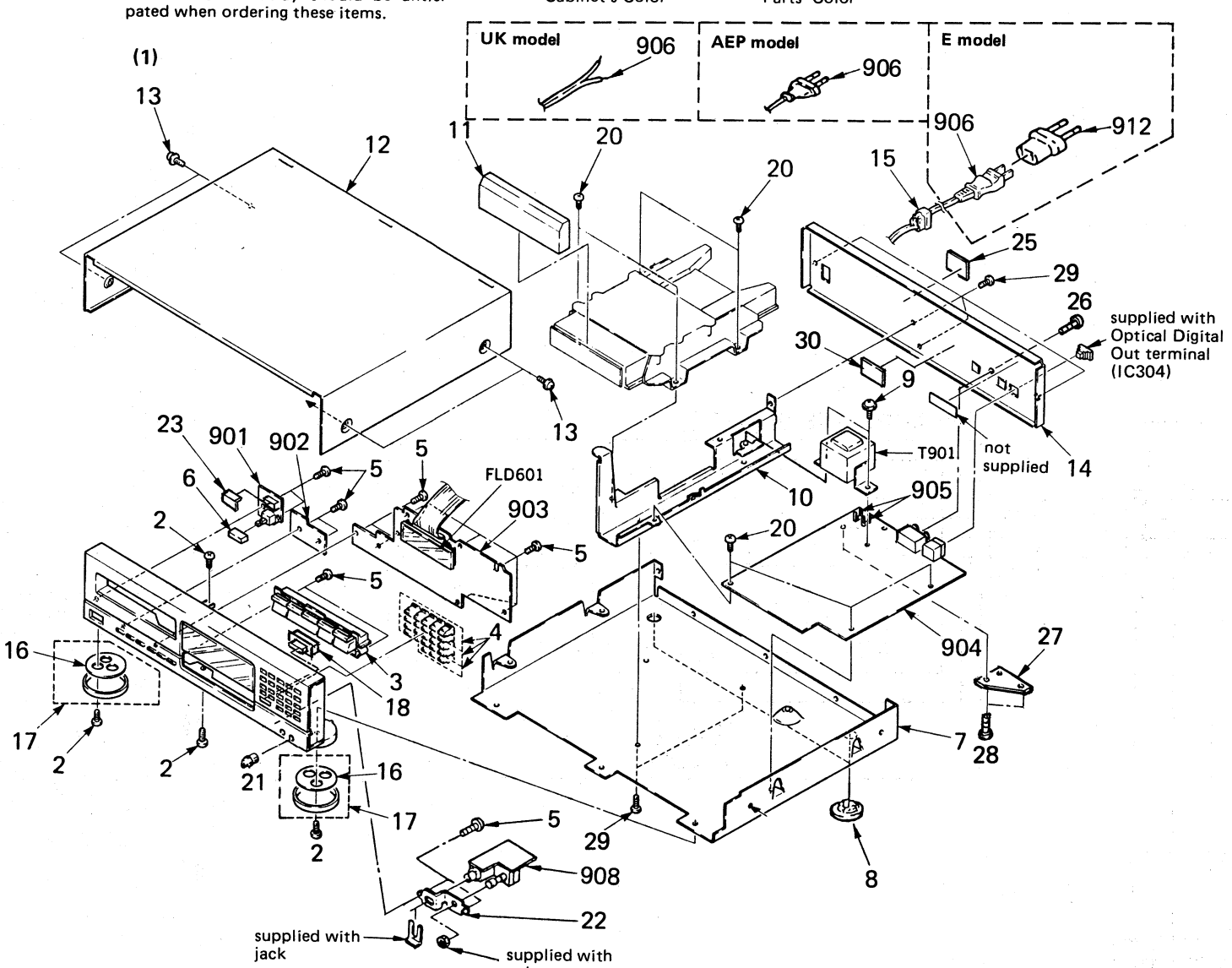


SECTION 5
EXPLODED VIEWS

NOTE:

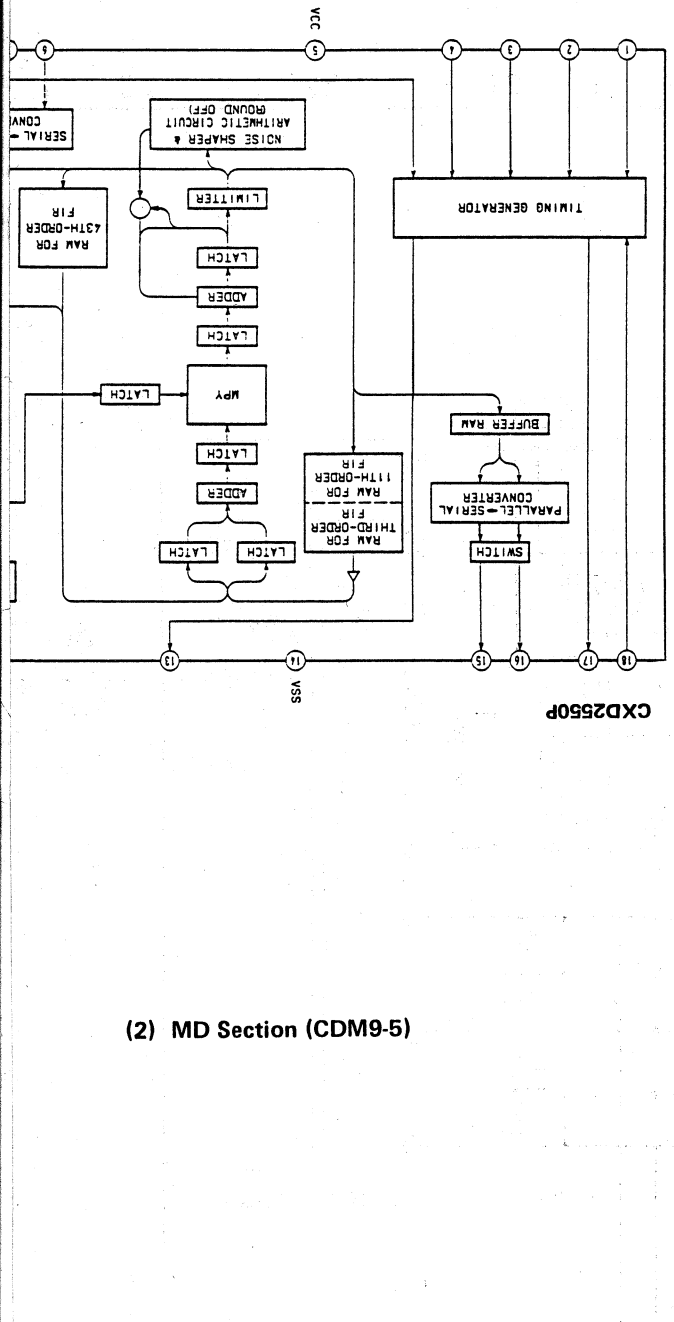
- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ Cabinet's Color ↑ Parts Color

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

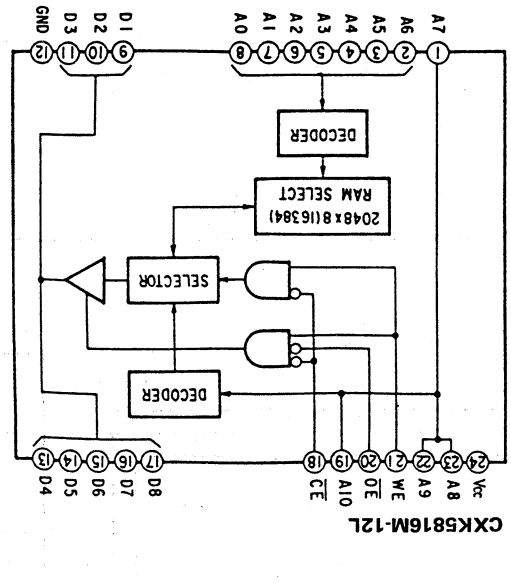


No.	Part No.	Description	Remarks
1	X-4922-915-1	PANEL ASSY, FRONT	
2	7-682-547-04	SCREW +BVTT 3X6 (S)	
3	X-4922-916-1	BUTTON (P) ASSY	
4	4-922-986-01	BUTTON (MC)	
5	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	
6	4-922-903-01	BUTTON (PW)	
7	*4-921-903-51	CHASSIS	
8	X-4922-001-1	FOOT ASSY	
9	2-383-566-00	SCREW	
10	*4-922-911-01	CHASSIS (R)	
11	4-922-990-11	(AEP,UK)...PANEL (LOADING)	
	4-922-990-21	(E).....PANEL (LOADING)	
12	4-919-376-02	CASE	
13	3-704-366-01	SCREW (CASE) (M3X8)	
14	*4-922-981-41	(AEP)...PANEL, BACK	
	*4-922-981-21	(UK)....PANEL, BACK	
	4-922-981-31	(E).....PANEL, BACK	
15	*3-703-244-00	(AEP,UK)...BUSHING (2104), CORD	
	*3-703-571-12	(E).....BUSHING (S)(4516), CORD	
16	4-921-906-01	FELT	
17	4-921-918-11	PLATE, ORNAMENTAL	
18	4-922-991-11	BUTTON (FD)	
20	7-682-548-04	SCREW +BVTT 3X8 (S)	

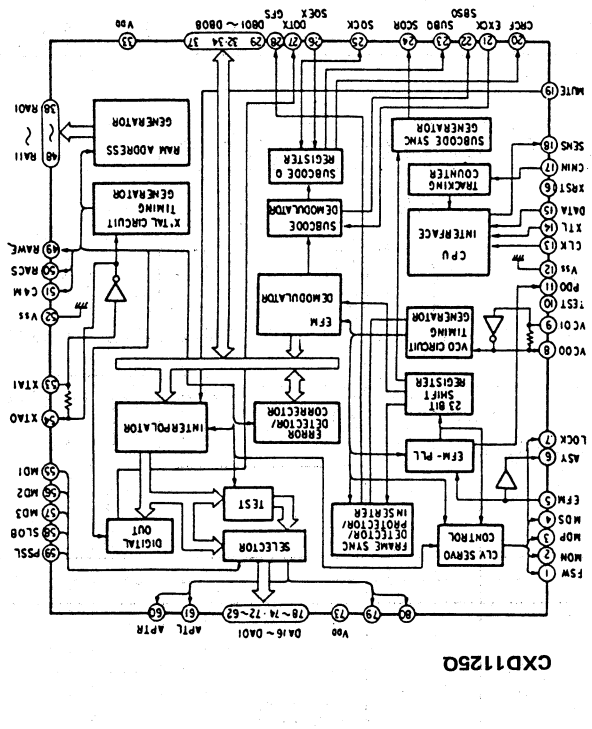
No.	Part No.	Description	Remarks
21	4-922-531-01	KNOB (A TYPE), LOV	
22	*4-922-987-01	BRACKET (HP)	
23	*4-927-311-01	COVER (REMOTE CONTROL)	
25	*4-885-838-00	LABEL, CLASS 1	
26	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S	
27	*4-922-988-01	COVER	
28	4-818-403-21	RIVET, NYLON	
29	7-682-547-09	SCREW +BVTT 3X6 (S)	
30	4-922-939-01	(UK)....CUSHION	
901	*1-628-611-11	PC BOARD, POWER SWITCH	
902	*1-628-610-11	PC BOARD, KEY BOARD	
903	*1-628-609-11	PC BOARD, DISPLAY	
904	*A-4651-232-A	(AEP,UK)...MOUNTED PCB, MAIN	
	*A-4651-233-A	(E).....MOUNTED PCB, MAIN	
905	*1-535-476-11	TERMINAL	
906	⚠1-551-188-XX	(E).....CORD, POWER	
	⚠1-555-795-00	(AEP)...CORD, POWER, EULO PLUG	
	⚠1-556-035-00	(UK)....CORD, POWER	
908	*1-628-612-11	PC BOARD, HEADPHONE	
912	⚠1-526-565-00	(E)...AC PLUG ADAPTOR	
FLD601	1-519-475-11	INDICATOR TUBE, FLUORESCENT	
T901	⚠1-449-025-11	(AEP,UK)...TRANSFORMER, POWER	
T901	⚠1-449-026-11	(E).....TRANSFORMER, POWER	



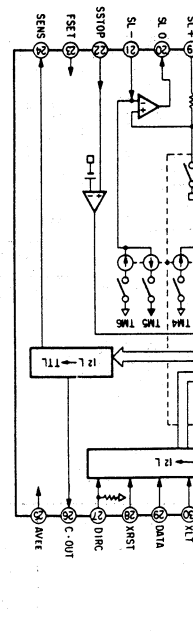
CXD2550P



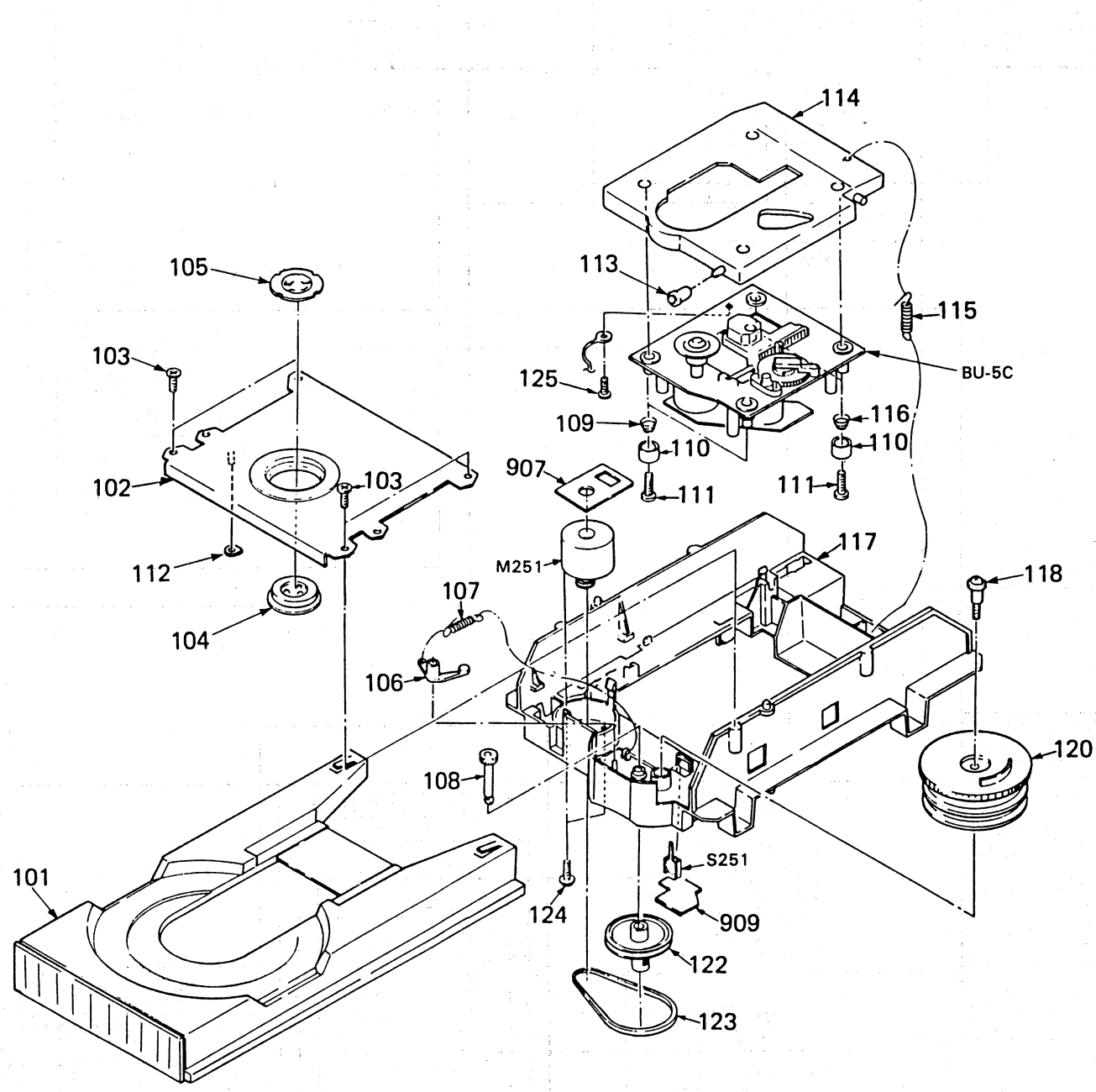
CXK5816M-12L


CMCF EXCK SUBQ SCOR SOCK SUBCOUT SUBQ1 ~ SUBQ8 SOCK COUT Vdd
MUTE SENS XRST CNIN DATA XTL CLK Vss PDO TEST VCOI VCOO LOCK ASY ASY EFM MOS MOP MON FSW
RAM ADDRESS GENERATOR
SUBCODE SYNC GENERATOR
SUBCODE Q REGISTER
TRACKING COUNTER
CPU INTERFACE
SUBCODE DEMODULATOR
X'TAL CIRCUIT TIMING GENERATOR
EFM DEMODULATOR
VCO CIRCUIT TIMING GENERATOR
RAM1 ~ RAM11 RAMWE RACS C4M XTAI XTAO
ERROR DETECTOR/ CORRECTOR
INTERPOLATOR
23 BIT SHIFT REGISTER
EFM-PLL
CLV SERVO CONTROL
FRAME SYNC DETECTOR/ PROTECTOR/ INSERTER
SELECTOR
TEST
DIGITAL OUT
PSSL SLOB MD1 MD2 MD3
Vdd DA16 ~ DA01 APTL APTR

CXD1125Q

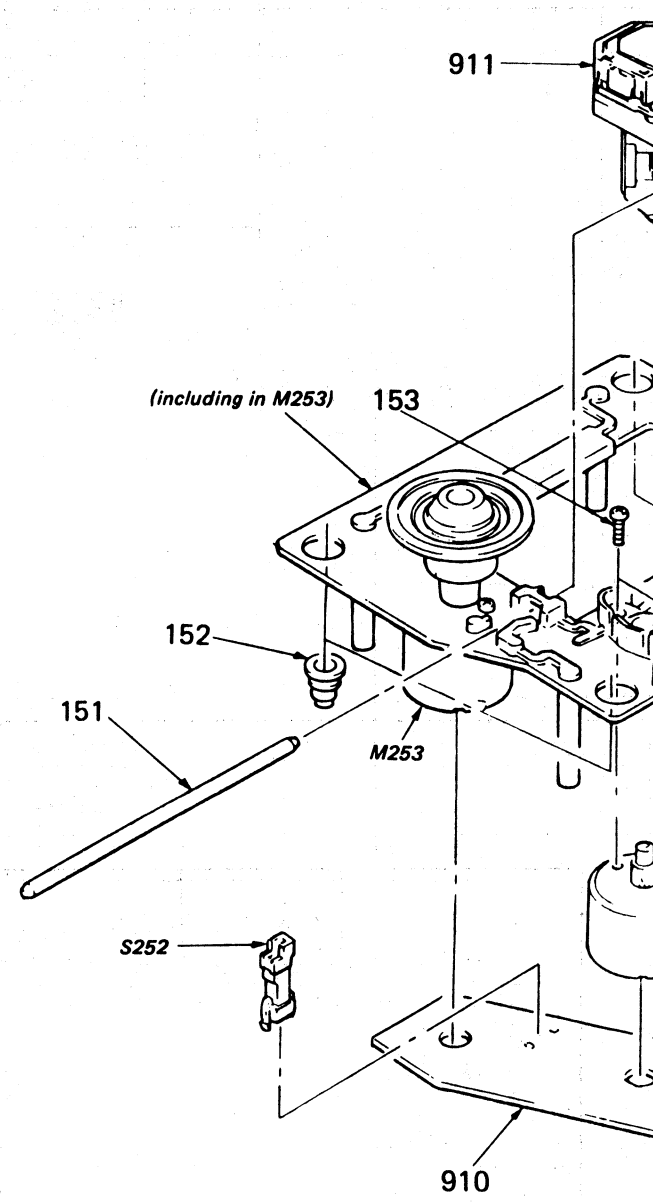


(2) MD Section (CDM9-5)



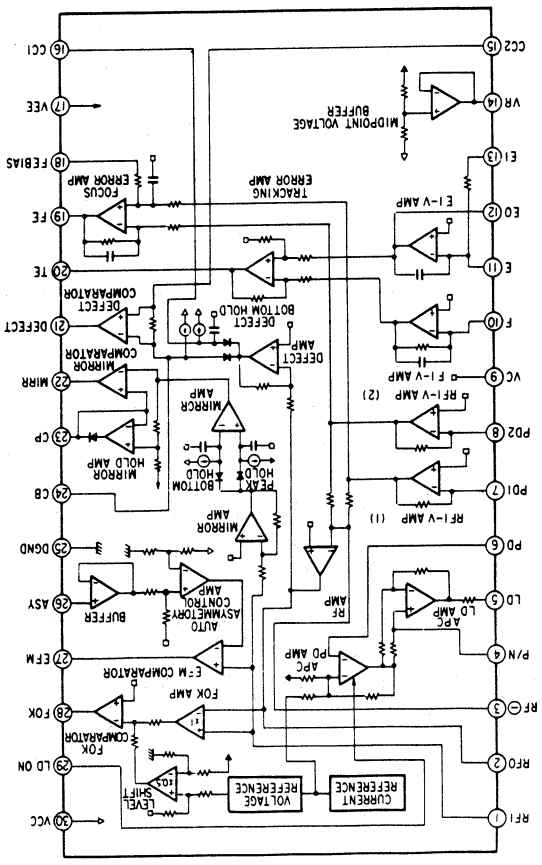
No.	Part No.	Description	Remarks
101	*4-922-515-01	TABLE, DISK	
102	*4-929-066-01	REINFORCEMENT (MG)	
103	7-685-546-11	SCREW +BTP 3X8 TYPE2 N-S	
104	A-4665-024-A	MAGNET ASSY	
105	*4-918-679-04	PULLEY, PRESS	
106	4-917-519-01	LEVER, SET	
107	4-917-514-01	SPRING, TENSION	
108	4-922-508-01	GEAR (DRIVING)	
109	4-917-541-01	SPRING (B)	
110	4-917-508-01	HOLDER, SP	
111	7-685-535-11	SCREW +BTP 2.6X10 TYPE2 N-S	
112	*4-922-529-01	DAMPER	
113	4-917-515-01	ROLLER	
114	*4-922-514-01	BRACKET (BU-5)	
115	4-917-526-01	SPRING, TENSION	
116	4-917-507-01	SPRING (H)	
117	*4-922-516-01	CHASSIS (MD)	
118	7-685-152-19	SCREW, STEP	
120	4-922-511-01	GEAR (LOADING)	
121	4-922-512-01	PULLEY	
123	4-917-522-02	BELT	
124	7-621-775-20	SCREW +B 2.6X5	
125	7-621-770-67	SCREW +BVTT 2.6X6 (S)	
907	*1-626-838-11	PC BOARD, L.MOTOR	
909	*1-626-837-11	PC BOARD, IN/OUT SW	
M251	A-4608-346-A	MOTOR ASSY, L	
S251	1-571-300-11	SWITCH, ROTARY	

(3) OPTICAL PICK-UP BLOCK (BU-5C)

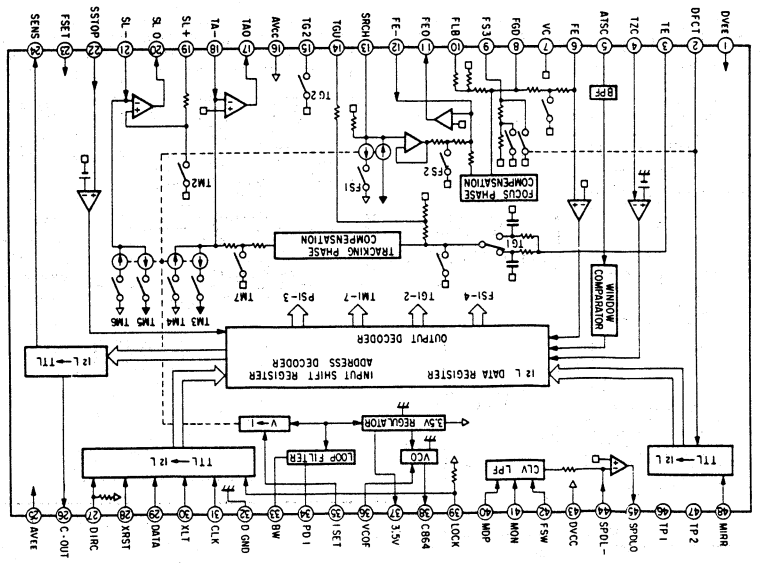


No.	Part No.	Description	Remarks
151	4-917-565-01	SHAFT, SLED	
152	4-917-562-01	INSULATOR	
153	7-621-255-15	SCREW +P 2X3	
154	4-917-567-01	GEAR (M)	
155	4-917-564-01	GEAR (P), FLATNESS	

4-4. IC BLOCK DIAGRAMS



CXA1081S



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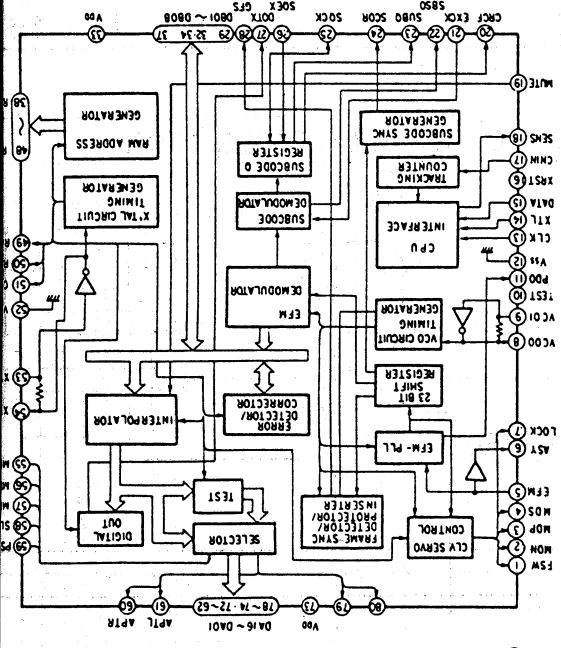


CXD1125Q

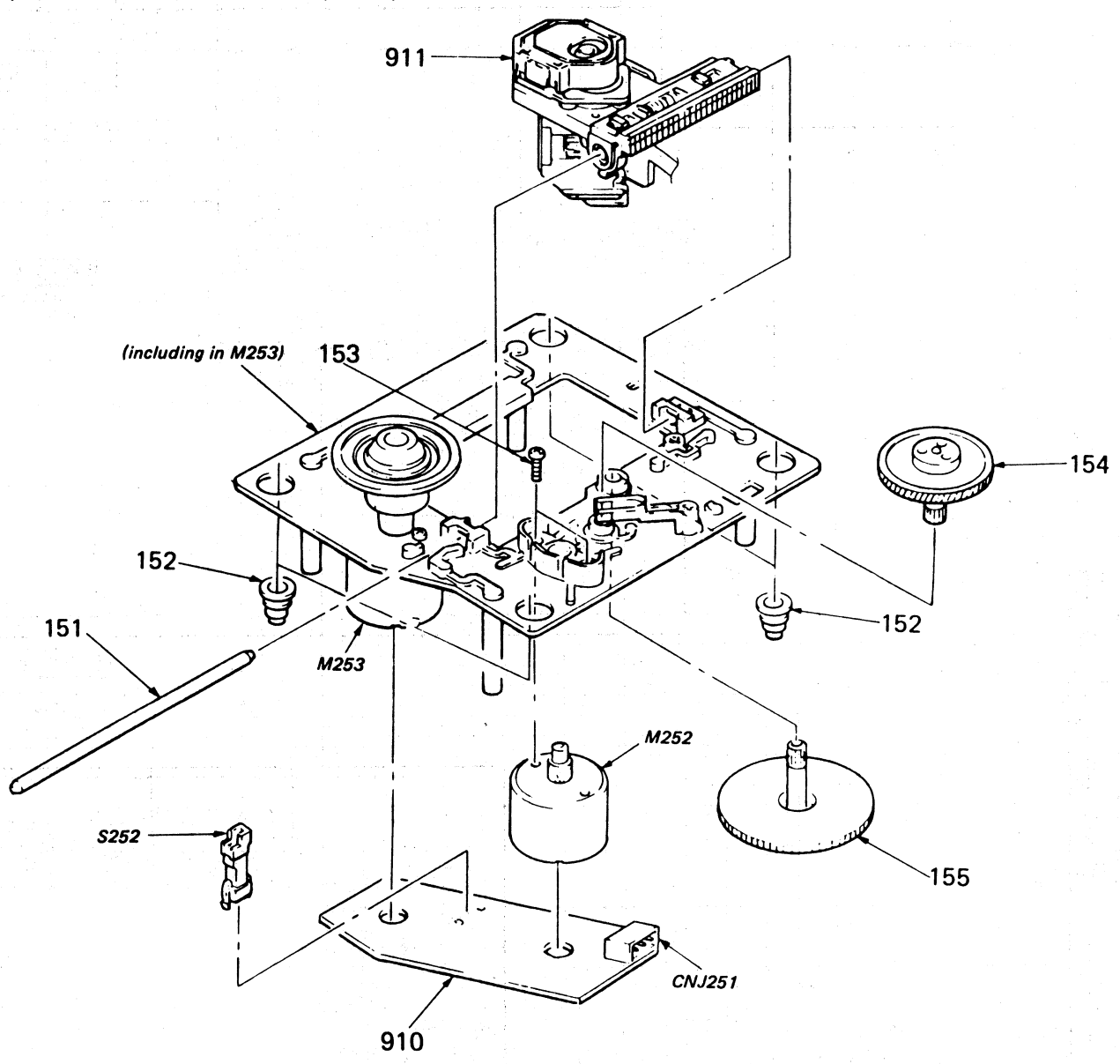
SE
ELECTRIC

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPA
M
RESI
• A
• F
COIL
• M
SEMI
Ir
U
U

(3) OPTICAL PICK-UP BLOCK (BU-5C)



Ref.No.	Part No.	Description
901	*1-628-611-11	PC BOARD, POWER SWITCH
902	*1-628-610-11	PC BOARD, KEY BOARD
903	*1-628-609-11	PC BOARD, DISPLAY
904	*A-4651-232-A	(AEP,UK)...MOUNTED PCB, MAIN
	*A-4651-233-A	(E).....MOUNTED PCB, MAIN
905	*1-535-476-11	TERMINAL
906	⚠1-551-188-XX	(E).....CORD, POWER
	⚠1-555-795-00	(AEP)...CORD, POWER, EULO PLUG
	⚠1-556-035-00	(UK)....CORD, POWER
907	*1-626-838-11	PC BOARD, L.MOTOR
908	*1-628-612-11	PC BOARD, HEADPHONE
909	*1-626-837-11	PC BOARD, IN/OUT SW
910	⚠1-624-322-11	PC BOARD, SL/SP MOTOR
911	⚠8-848-062-01	DEVICE, OPTICS (KSS-150A)
912	⚠1-526-565-00	(E)...AC PLUG ADAPTOR

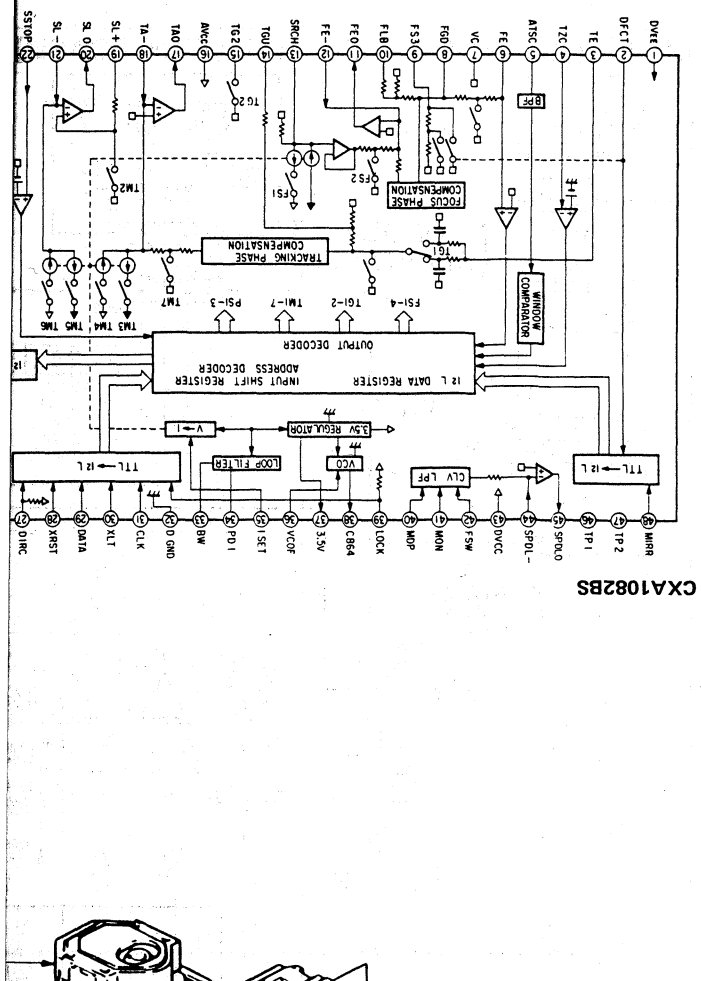
C001	1-126-017-11	ELECT	6800MF	20%
C002	1-124-887-00	ELECT	3300MF	20%
C003	1-124-927-11	ELECT	4.7MF	20%
C004	1-124-927-11	ELECT	4.7MF	20%
C005	1-123-875-11	ELECT	10MF	20%
C006	1-164-159-11	CERAMIC	0.1MF	
C007	1-124-472-11	ELECT	470MF	20%
C008	1-124-472-11	ELECT	470MF	20%
C009	1-124-572-11	ELECT	100MF	20%
C010	1-124-122-11	ELECT	100MF	20%
C101	1-161-375-00	CERAMIC	0.0022MF	30%
C103	1-124-477-11	ELECT	47MF	20%
C104	1-162-294-31	CERAMIC	0.001MF	10%
C105	1-162-199-31	CERAMIC	10PF	5%
C106	1-162-199-31	CERAMIC	10PF	5%
C107	1-136-173-00	FILM	0.47MF	5%
C108	1-161-375-00	CERAMIC	0.0022MF	30%
C109	1-136-153-00	FILM	0.01MF	5%
C110	1-136-153-00	FILM	0.01MF	5%
C111	1-126-101-11	ELECT	100MF	20%
C112	1-126-233-11	ELECT	22MF	20%
C113	1-136-159-00	FILM	0.033MF	5%
C114	1-161-377-00	CERAMIC	0.0047MF	30%
C201	1-136-165-00	FILM	0.1MF	5%
C202	1-136-159-00	FILM	0.033MF	5%
C203	1-123-382-00	ELECT	3.3MF	20%
C204	1-136-165-00	FILM	0.1MF	5%
C205	1-161-379-00	CERAMIC	0.01MF	20%
C206	1-161-377-00	CERAMIC	0.0047MF	30%
C207	1-124-927-11	ELECT	4.7MF	20%

arks

No.	Part No.	Description	Remarks
151	4-917-565-01	SHAFT, SLED	
152	4-917-562-01	INSULATOR	
153	7-621-255-15	SCREW +P 2X3	
154	4-917-567-01	GEAR (M)	
155	4-917-564-01	GEAR (P), FLATNESS	

No.	Part No.	Description	Remarks
910	*1-624-322-11	PC BOARD, SL/SP MOTOR	
911	⚠8-848-062-01	**DEVICE,OPTICS (KSS-150A)**	
CNJ251	*1-564-720-21	PIN, CONNECTOR (SMALL TYPE) 4P	
M252	X-4917-504-1	ASSY, MOTOR (SLED)	
M253	X-4917-523-1	ASSY, MOTOR (SPINDLE)	
S252	1-571-274-11	SWITCH, LEAF (**LIMIT IN**)	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

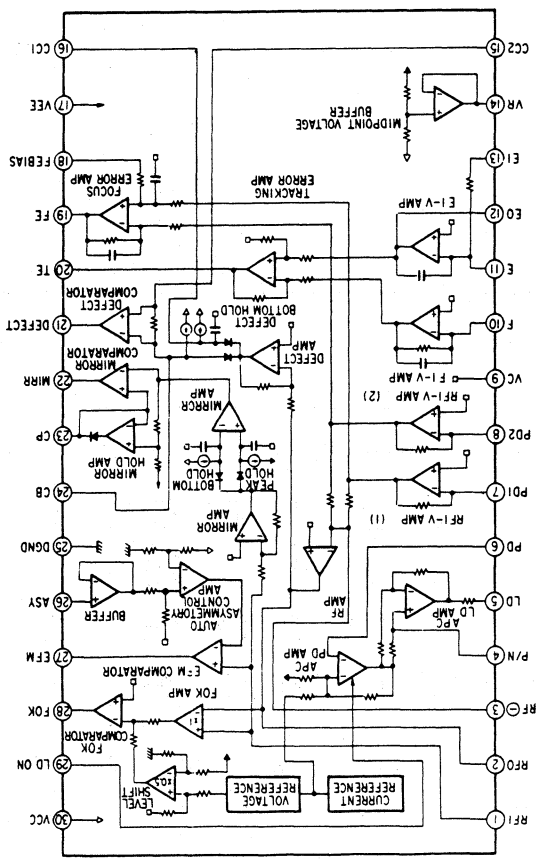


Remarks	No.	Part No.	Description	Remarks
	910	*1-624-322-11	PC BOARD, SL/SP MOTOR	
	911	⚠.8-848-062-01	DEVICE,OPTICS (KSS-150A)	
	CNJ251	*1-564-720-21	PIN, CONNECTOR (SMALL TYPE) 4P	
	M252	X-4917-504-1	ASSY, MOTOR (SLED)	
	M253	X-4917-523-1	ASSY, MOTOR (SPINDLE)	
	S252	1-571-274-11	SWITCH, LEAF (LIMIT IN)	

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

CXA1082BS

4-4. IC BLOCK DIAGRAMS



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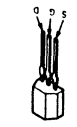

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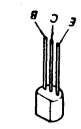

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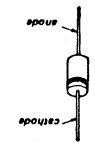
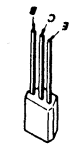
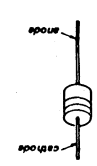


US1060M
10E2



DTA144ES
DTC114ES
DTC144ES
2SC3901



HZS9B2L
RD5.1ES-B
1SS202-1

● Semiconductor Lead Layouts

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description			
901	*1-628-611-11	PC BOARD, POWER SWITCH			
902	*1-628-610-11	PC BOARD, KEY BOARD			
903	*1-628-609-11	PC BOARD, DISPLAY			
904	*A-4651-232-A	(AEP,UK)...MOUNTED PCB, MAIN			
	*A-4651-233-A	(E).....MOUNTED PCB, MAIN			
905	*1-535-476-11	TERMINAL			
906	⚠.1-551-188-XX	(E).....CORD, POWER			
	⚠.1-555-795-00	(AEP)...CORD, POWER, EULO PLUG			
	⚠.1-556-035-00	(UK)....CORD, POWER			
907	*1-626-838-11	PC BOARD, L.MOTOR			
908	*1-628-612-11	PC BOARD, HEADPHONE			
909	*1-626-837-11	PC BOARD, IN/OUT SW			
910	⚠.1-624-322-11	PC BOARD, SL/SP MOTOR			
911	⚠.8-848-062-01	DEVICE, OPTICS (KSS-150A)			
912	⚠.1-526-565-00	(E)...AC PLUG ADAPTOR			
C001	1-126-017-11	ELECT	6800MF	20%	16V
C002	1-124-887-00	ELECT	3300MF	20%	16V
C003	1-124-927-11	ELECT	4.7MF	20%	50V
C004	1-124-927-11	ELECT	4.7MF	20%	50V
C005	1-123-875-11	ELECT	10MF	20%	50V
C006	1-164-159-11	CERAMIC	0.1MF		50V
C007	1-124-472-11	ELECT	470MF	20%	10V
C008	1-124-472-11	ELECT	470MF	20%	10V
C009	1-124-572-11	ELECT	100MF	20%	63V
C010	1-124-122-11	ELECT	100MF	20%	50V
C101	1-161-375-00	CERAMIC	0.0022MF	30%	16V
C103	1-124-477-11	ELECT	47MF	20%	16V
C104	1-162-294-31	CERAMIC	0.001MF	10%	50V
C105	1-162-199-31	CERAMIC	10PF	5%	50V
C106	1-162-199-31	CERAMIC	10PF	5%	50V
C107	1-136-173-00	FILM	0.47MF	5%	50V
C108	1-161-375-00	CERAMIC	0.0022MF	30%	16V
C109	1-136-153-00	FILM	0.01MF	5%	50V
C110	1-136-153-00	FILM	0.01MF	5%	50V
C111	1-126-101-11	ELECT	100MF	20%	16V
C112	1-126-233-11	ELECT	22MF	20%	25V
C113	1-136-159-00	FILM	0.033MF	5%	50V
C114	1-161-377-00	CERAMIC	0.0047MF	30%	16V
C201	1-136-165-00	FILM	0.1MF	5%	50V
C202	1-136-159-00	FILM	0.033MF	5%	50V
C203	1-123-382-00	ELECT	3.3MF	20%	50V
C204	1-136-165-00	FILM	0.1MF	5%	50V
C205	1-161-379-00	CERAMIC	0.01MF	20%	16V
C206	1-161-377-00	CERAMIC	0.0047MF	30%	16V
C207	1-124-927-11	ELECT	4.7MF	20%	50V
C208	1-124-477-11	ELECT	47MF	20%	16V
C209	1-162-294-31	CERAMIC	0.001MF	10%	50V
C210	1-162-282-31	CERAMIC	100PF	10%	50V
C211	1-126-233-11	ELECT	22MF	20%	25V
C212	1-126-233-11	ELECT	22MF	20%	25V
C213	1-126-233-11	ELECT	22MF	20%	25V
C214	1-124-499-11	ELECT	1MF	20%	50V
C215	1-124-499-11	ELECT	1MF	20%	50V
C216	1-124-499-11	ELECT	1MF	20%	50V
C217	1-161-375-00	CERAMIC	0.0022MF	30%	16V
C218	1-162-291-31	CERAMIC	560PF	10%	50V
C219	1-123-875-11	ELECT	10MF	20%	50V
C220	1-136-165-00	FILM	0.1MF	5%	50V
C225	1-126-101-11	ELECT	100MF	20%	16V
C226	1-126-101-11	ELECT	100MF	20%	16V
C229	1-164-159-11	CERAMIC	0.1MF		50V
C230	1-164-159-11	CERAMIC	0.1MF		50V
C251	1-136-157-00	FILM	0.022MF	5%	50V
C252	1-130-475-00	MYLAR	0.0022MF	5%	50V
C253	1-130-475-00	MYLAR	0.0022MF	5%	50V
C301	1-124-902-00	ELECT	0.47MF	20%	50V
C302	1-136-159-00	FILM	0.033MF	5%	50V
C303	1-161-379-00	CERAMIC	0.01MF	20%	16V
C304	1-124-902-00	ELECT	0.47MF	20%	50V
C305	1-124-499-11	ELECT	1MF	20%	50V
C306	1-124-499-11	ELECT	1MF	20%	50V
C307	1-126-101-11	ELECT	100MF	20%	16V
C308	1-126-233-11	ELECT	22MF	20%	25V
C310	1-162-204-31	CERAMIC	16PF	5%	50V
C311	1-162-203-31	CERAMIC	15PF	5%	50V
C312	1-164-159-11	CERAMIC	0.1MF		50V
C313	1-126-101-11	ELECT	100MF	20%	16V
C314	1-126-101-11	ELECT	100MF	20%	16V
C315	1-136-173-00	FILM	0.47MF	5%	50V
C320	1-164-159-11	CERAMIC	0.1MF		50V
C330	1-164-159-11	CERAMIC	0.1MF		50V
C401	1-130-481-00	MYLAR	0.0068MF	5%	50V
C402	1-130-481-00	MYLAR	0.0068MF	5%	50V
C403	1-130-475-00	MYLAR	0.0022MF	5%	50V
C404	1-130-475-00	MYLAR	0.0022MF	5%	50V
C405	1-126-233-11	ELECT	22MF	20%	25V
C406	1-126-233-11	ELECT	22MF	20%	25V
C407	1-130-475-00	MYLAR	0.0022MF	5%	50V
C408	1-130-475-00	MYLAR	0.0022MF	5%	50V
C411	1-126-103-11	ELECT	470MF	20%	16V
C412	1-126-103-11	ELECT	470MF	20%	16V

Ref.No.	Part No.	Description			
C415	1-162-294-31	CERAMIC	0.001MF	10%	50V
C501	1-124-234-00	ELECT	22MF	20%	16V
C502	1-124-234-00	ELECT	22MF	20%	16V
C503	1-162-290-31	CERAMIC	470PF	10%	50V
C504	1-162-290-31	CERAMIC	470PF	10%	50V
C505	1-164-159-11	CERAMIC	0.1MF		50V
C601	1-164-159-11	CERAMIC	0.1MF		50V
C602	1-164-159-11	CERAMIC	0.1MF		50V
C603	1-162-290-31	CERAMIC	470PF	10%	50V
C604	1-162-290-31	CERAMIC	470PF	10%	50V
C605	1-162-290-31	CERAMIC	470PF	10%	50V
C606	1-164-159-11	CERAMIC	0.1MF		50V
C607	1-162-290-31	CERAMIC	470PF	10%	50V
CN256	*1-564-495-11	PIN, CONNECTOR 2P			
CN260	*1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P			
CNJ604	1-535-743-11	JUMPER, FILM (WITH TERMINAL)			
CNP001	*1-564-340-00	PIN, CONNECTOR 6P			
CNP101	*1-564-710-11	PIN, CONNECTOR (SMALL TYPE) 8P			
CNP102	*1-564-706-31	PIN, CONNECTOR (SMALL TYPE) 4P			
CNP103	*1-564-706-31	PIN, CONNECTOR (SMALL TYPE) 4P			
CNP201	*1-564-706-11	PIN, CONNECTOR (SMALL TYPE) 4P			
CNP202	*1-564-339-61	PIN, CONNECTOR 5P			
CNP204	1-566-908-11	SOCKET, CONNECTOR 32P			
CNP401	*1-564-708-11	PIN, CONNECTOR (SMALL TYPE) 6P			
CNP501	1-564-722-11	PIN, CONNECTOR (SMALL TYPE) 6P			
D001	8-719-200-02	DIODE 10E2			
D002	8-719-200-02	DIODE 10E2			
D003	8-719-200-02	DIODE 10E2			
D004	8-719-200-02	DIODE 10E2			
D005	8-719-200-02	DIODE 10E2			
D006	8-719-109-89	DIODE RD5.1ES-B2			
D401	8-719-107-94	DIODE 1SS202-1			
D601	8-719-000-26	DIODE US1060M			
D602	8-719-000-26	DIODE US1060M			
D603	8-719-000-26	DIODE US1060M			
D604	8-719-000-26	DIODE US1060M			
D605	8-719-000-26	DIODE US1060M			
D606	8-719-000-26	DIODE US1060M			
D607	8-719-000-26	DIODE US1060M			
D608	8-719-933-57	DIODE HZS9B2L			
FLD601	1-519-475-11	INDICATOR TUBE, FLUORESCENT			
IC001	8-759-631-40	IC M5294P			
IC002	8-759-605-43	IC M5231TL			
IC101	8-752-034-00	IC CXA1081S			
IC201	8-752-032-30	IC CXA1082BS			

Ref.No.	Part No.	Description
IC202	8-752-035-28	IC CXA-1291P
IC203	8-752-035-28	IC CXA-1291P
IC301	8-752-328-62	IC CXD1125Q
IC302	8-752-323-64	IC CXK5816M-12L
IC303	8-752-328-72	IC CXD2550P
IC304	8-759-977-71	IC GP1F31T (OPTICAL DIGITAL OUT)
IC305	8-759-605-44	IC M74HC6004P
IC401	8-759-937-95	IC PCM56P-S
IC402	8-759-937-95	IC PCM56P-S
IC403	8-759-945-58	IC RC4558P
IC501	8-759-745-56	IC NJM4556D
IC601	8-759-980-34	IC MSC6458-36SS
IC602	8-749-920-03	IC GP1U52
J401	1-566-921-11	JACK, PIN 2P (LINE OUT L/R)
J501	1-507-796-71	JACK, LARGE TYPE (HEADPHONES)
L301	*1-410-858-11	INDUCTOR 0UH
M251	A-4608-346-A	MOTOR ASSY, L
M252	X-4917-504-1	MOTOR ASSY (SLED)
M253	X-4917-523-1	MOTOR ASSY (SPINDLE)
Q001	8-729-600-94	TRANSISTOR 2SK381-C
Q101	8-729-801-43	TRANSISTOR 2SB1013
Q201	8-729-900-80	TRANSISTOR DTC114ES
Q202	8-729-900-89	TRANSISTOR DTC144ES
Q301	8-729-900-89	TRANSISTOR DTC144ES
Q401	8-729-806-26	TRANSISTOR 2SC3901
Q402	8-729-806-26	TRANSISTOR 2SC3901
Q403	8-729-900-65	TRANSISTOR DTA144ES
Q404	8-729-900-89	TRANSISTOR DTC144ES
Q407	8-729-806-27	TRANSISTOR 2SC3901
Q408	8-729-806-26	TRANSISTOR 2SC3901
Q601	8-729-900-80	TRANSISTOR DTC114ES
Q602	8-729-900-80	TRANSISTOR DTC114ES
Q603	8-729-900-80	TRANSISTOR DTC114ES
R001	1-249-439-11	CARBON 68K 5% 1/4W
R002	1-249-423-11	CARBON 3.3K 5% 1/4W
R003	1-249-417-11	CARBON 1K 5% 1/4W
R004	1-249-429-11	CARBON 10K 5% 1/4W
R101	1-247-864-11	CARBON 24K 5% 1/4W
R104	1-249-397-11	CARBON 22 5% 1/4W
R105	1-247-806-11	CARBON 91 5% 1/4W
R106	1-249-433-11	CARBON 22K 5% 1/4W
R108	1-249-432-11	CARBON 18K 5% 1/4W
R109	1-249-432-11	CARBON 18K 5% 1/4W
R110	1-249-425-11	CARBON 4.7K 5% 1/4W
R111	1-249-425-11	CARBON 4.7K 5% 1/4W

Ref.No.	Part No.	Description			
R112	1-249-417-11	CARBON	1K	5%	1/4W
R201	1-247-882-11	CARBON	130K	5%	1/4W
R202	1-249-432-11	CARBON	18K	5%	1/4W
R203	1-249-432-11	CARBON	18K	5%	1/4W
R204	1-249-440-11	CARBON	82K	5%	1/4W
R205	1-247-889-00	CARBON	270K	5%	1/4W
R206	1-249-435-11	CARBON	33K	5%	1/4W
R207	1-249-423-11	CARBON	3.3K	5%	1/4W
R208	1-249-425-11	CARBON	4.7K	5%	1/4W
R209	1-247-896-11	CARBON	510K	5%	1/4W
R210	1-249-417-11	CARBON	1K	5%	1/4W
R211	1-249-414-11	CARBON	560	5%	1/4W
R212	1-249-433-11	CARBON	22K	5%	1/4W
R213	1-249-441-11	CARBON	100K	5%	1/4W
R214	1-215-434-00	METAL	3.6K	1%	1/6W
R215	1-249-441-11	CARBON	100K	5%	1/4W
R216	1-249-429-11	CARBON	10K	5%	1/4W
R217	1-247-881-00	CARBON	120K	5%	1/4W
R218	1-249-427-11	CARBON	6.8K	5%	1/4W
R219	1-249-435-11	CARBON	33K	5%	1/4W
R220	1-249-437-11	CARBON	47K	5%	1/4W
R221	1-247-882-11	CARBON	130K	5%	1/4W
R222	1-247-883-00	CARBON	150K	5%	1/4W
R223	1-247-882-11	CARBON	130K	5%	1/4W
R224	1-247-883-00	CARBON	150K	5%	1/4W
R225	1-249-429-11	CARBON	10K	5%	1/4W
R230	1-249-393-11	CARBON	10	5%	1/4W
R231	1-249-393-11	CARBON	10	5%	1/4W
R236	1-249-417-11	CARBON	1K	5%	1/4W
R237	1-249-417-11	CARBON	1K	5%	1/4W
R238	1-249-417-11	CARBON	1K	5%	1/4W
R239	1-249-417-11	CARBON	1K	5%	1/4W
R240	1-249-425-11	CARBON	4.7K	5%	1/4W
R301	1-247-903-00	CARBON	1M	5%	1/4W
R302	1-249-433-11	CARBON	22K	5%	1/4W
R303	1-249-429-11	CARBON	10K	5%	1/4W
R304	1-249-441-11	CARBON	100K	5%	1/4W
R305	1-249-441-11	CARBON	100K	5%	1/4W
R306	1-249-429-11	CARBON	10K	5%	1/4W
R307	1-215-469-00	METAL	100K	1%	1/6W
R308	1-215-469-00	METAL	100K	1%	1/6W
R310	1-249-417-11	CARBON	1K	5%	1/4W
R311	1-249-417-11	CARBON	1K	5%	1/4W
R312	1-249-417-11	CARBON	1K	5%	1/4W
R314	1-249-411-11	CARBON	330	5%	1/4W

Ref.No.	Part No.	Description			
R315	1-249-411-11	CARBON	330	5%	1/4W
R316	1-249-411-11	CARBON	330	5%	1/4W
R318	1-249-429-11	CARBON	10K	5%	1/4W
R319	1-249-411-11	CARBON	330	5%	1/4W
R320	1-249-411-11	CARBON	330	5%	1/4W
R401	1-249-416-11	CARBON	820	5%	1/4W
R402	1-249-416-11	CARBON	820	5%	1/4W
R403	1-249-416-11	CARBON	820	5%	1/4W
R404	1-249-416-11	CARBON	820	5%	1/4W
R405	1-247-891-00	CARBON	330K	5%	1/4W
R406	1-247-891-00	CARBON	330K	5%	1/4W
R407	1-249-409-11	CARBON	220	5%	1/4W
R408	1-249-409-11	CARBON	220	5%	1/4W
R409	1-249-409-11	CARBON	220	5%	1/4W
R410	1-249-409-11	CARBON	220	5%	1/4W
R411	1-249-414-11	CARBON	560	5%	1/4W
R412	1-249-414-11	CARBON	560	5%	1/4W
R413	1-249-405-11	CARBON	100	5%	1/4W
R414	1-249-405-11	CARBON	100	5%	1/4W
R415	1-249-441-11	CARBON	100K	5%	1/4W
R416	1-249-433-11	CARBON	22K	5%	1/4W
R417	1-249-433-11	CARBON	22K	5%	1/4W
R501	1-249-417-11	CARBON	1K	5%	1/4W
R502	1-249-417-11	CARBON	1K	5%	1/4W
R503	1-249-423-11	CARBON	3.3K	5%	1/4W
R504	1-249-423-11	CARBON	3.3K	5%	1/4W
R505	1-249-433-11	CARBON	22K	5%	1/4W
R506	1-249-433-11	CARBON	22K	5%	1/4W
R507	1-249-402-11	CARBON	56	5%	1/4W
R508	1-249-402-11	CARBON	56	5%	1/4W
R601	1-249-435-11	CARBON	33K	5%	1/4W
R602	1-249-435-11	CARBON	33K	5%	1/4W
R603	1-249-435-11	CARBON	33K	5%	1/4W
R604	1-249-435-11	CARBON	33K	5%	1/4W
R605	1-249-435-11	CARBON	33K	5%	1/4W
R606	1-249-435-11	CARBON	33K	5%	1/4W
R607	1-249-435-11	CARBON	33K	5%	1/4W
R611	1-249-425-11	CARBON	4.7K	5%	1/4W
R612	1-249-425-11	CARBON	4.7K	5%	1/4W
R613	1-249-425-11	CARBON	4.7K	5%	1/4W
R614	1-249-425-11	CARBON	4.7K	5%	1/4W
RV101	1-228-995-00	RES, ADJ, CARBON 22K			
RV102	1-228-993-00	RES, ADJ, CARBON 4.7K			
RV103	1-228-995-00	RES, ADJ, CARBON 22K			
RV104	1-228-995-00	RES, ADJ, CARBON 22K			

Ref.No.	Part No.	Description
RV201	1-228-990-00	RES, ADJ, METAL GLAZE 1K
RV201	1-238-394-11	RES, ADJ, METAL GLAZE 1K
RV501	1-238-403-21	RES, VAR, CARBON 20K/20K (LEVEL)
S001	⚠ 1-571-722-11	(E)...SWITCH, VOLTAGE SELECTOR
		(VOLTAGE SELECTOR)
S251	1-571-300-11	SWITCH, ROTARY
S252	1-571-274-11	LEAF SWITCH (LIMIT IN)
S601	1-554-596-21	SWITCH, KEY BOARD (17)
S602	1-554-596-21	SWITCH, KEY BOARD (18)
S603	1-554-596-21	SWITCH, KEY BOARD (19)
S604	1-554-596-21	SWITCH, KEY BOARD (20)
S605	1-554-596-21	SWITCH, KEY BOARD (16)
S606	1-554-596-21	SWITCH, KEY BOARD (11)
S607	1-554-596-21	SWITCH, KEY BOARD (12)
S608	1-554-596-21	SWITCH, KEY BOARD (13)
S609	1-554-596-21	SWITCH, KEY BOARD (14)
S610	1-554-596-21	SWITCH, KEY BOARD (15)
S611	1-554-596-21	SWITCH, KEY BOARD (>20)
S612	1-554-596-21	SWITCH, KEY BOARD (6)
S613	1-554-596-21	SWITCH, KEY BOARD (7)
S614	1-554-596-21	SWITCH, KEY BOARD (8)
S615	1-554-596-21	SWITCH, KEY BOARD (9)
S616	1-554-596-21	SWITCH, KEY BOARD (10)
S617	1-554-596-21	SWITCH, KEY BOARD (FADER)
S618	1-554-596-21	SWITCH, KEY BOARD (1)
S619	1-554-596-21	SWITCH, KEY BOARD (2)
S620	1-554-596-21	SWITCH, KEY BOARD (3)
S621	1-554-596-21	SWITCH, KEY BOARD (4)
S622	1-554-596-21	SWITCH, KEY BOARD (5)
S623	1-554-596-21	SWITCH, KEY BOARD (◀◀)
S624	1-554-596-21	SWITCH, KEY BOARD (▶▶)
S625	1-554-596-21	SWITCH, KEY BOARD (EDIT/TIME FADE)
S626	1-554-596-21	SWITCH, KEY BOARD (CHECK)
S627	1-554-596-21	SWITCH, KEY BOARD (CLEAR)
S628	1-554-596-21	SWITCH, KEY BOARD (⏮)
S629	1-554-596-21	SWITCH, KEY BOARD (⏭)
S630	1-554-596-21	SWITCH, KEY BOARD (⏏OPEN/CLOSE)
S631	1-554-596-21	SWITCH, KEY BOARD (▷)
S632	1-554-596-21	SWITCH, KEY BOARD (❚❚)
S633	1-554-596-21	SWITCH, KEY BOARD (■)
S634	1-554-596-21	SWITCH, KEY BOARD (REPEAT)
S635	1-554-596-21	SWITCH, KEY BOARD (PROGRAM)
S636	1-554-596-21	SWITCH, KEY BOARD (SHUFFLE)
S637	1-554-596-21	SWITCH, KEY BOARD (CONTINUE/SINGLE)
S638	1-554-596-21	SWITCH, KEY BOARD (AUTO SPACE)
S639	1-554-596-21	SWITCH, KEY BOARD (TIME)
S640	1-571-305-11	SWITCH, PUSH (1 KEY)(POWER)

Ref.No.	Part No.	Description
T901	⚠ 1-449-025-11	(AEP,UK)...TRANSFORMER, POWER
T901	⚠ 1-449-026-11	(E).....TRANSFORMER, POWER
X301	1-567-926-11	VIBRATOR, CRYSTAL (16.9344MHz)
X601	1-577-082-11	VIBRATOR, CERAMIC (4MHz)

ACCESSORY & PACKING MATERIAL

	1-465-051-11	REMOTE COMMANDER (RM-D270)
	1-558-543-11	CORD, CONNECTION
	3-786-618-11	MANUAL, INSTRUCTION (ENGLISH,FRENCH,SPANISH,PORTUGUESE)
	3-786-618-41	(AEP)....MANUAL, INSTRUCTION (GERMAN,DUTCH,SWEDISH,ITALIAN)
*	3-795-629-11	(AEP)....INSTRUCTION
*	4-922-998-01	CUSHION
*	4-927-316-11	INDIVIDUAL CARTON
	4-928-079-01	COVER, BATTERY (FOR REMOTE COMMANDER)
	7-632-650-75	SHEET, PROTECTION (500MM)

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Troubleshooting Guide

Symptom	Cause	Remedy
The disc tray does not close.	The disc is not placed correctly.	Place the disc correctly on the disc tray.
Play does not start.	Dirty disc.	Clean the disc.
	The disc is inserted upside down.	Insert the disc with the printed side up.
	❚❚ is engaged.	Press ❚❚ again to release it.
	Moisture condensation.	Leave the player turned on for approximately one hour.
Sound is not heard.	Loose connection.	Insert the plug firmly.
	Connection is incorrect.	Check the connection.
Play does not begin from the first selection.	The player is in the PROGRAM or SHUFFLE mode.	Press CONTINUE.
Play begins only by turning on the power.	A disc is in the tray.	—
The remote commander does not operate the unit.	The batteries are run down.	Replace both batteries.
	The remote commander is not pointed at the remote sensor.	Point the remote commander at the sensor.
	There is an obstacle between the remote commander and the unit.	Remove the obstacle.
	The remote commander is too far from the unit.	Move closer.
Any operation is not possible.	The internal control program may not run.	Turn off the power and turn it on again.

9-953-601-11

Sony Corporation
Audio Group

English
89B0557-1
Printed in Japan
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Published by A/V Engineering Service Dept.